# THE CANCER CENTERS BRANCH OF THE NATIONAL CANCER INSTITUTE

# PARTS I AND II: POLICIES AND GUIDELINES RELATING TO THE CANCER-CENTER SUPPORT GRANT

## September 2003

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## INTRODUCTION

The NCI-designated Cancer Centers are the centerpiece of the nation's effort to reduce morbidity and mortality from cancer. They are the major sources of new knowledge relating to the nature of cancer and of new and more effective approaches to prevention, diagnosis, and therapy. The cancer centers are also the principal deliverers of medical advances to patients and their families and the chief educators of health-care professionals and the public. An excellent cancer center is a local, regional, and national resource, having an impact that goes well beyond its own walls into the communities it serves directly and, by the generalizable knowledge it creates, into the world at large. To defeat cancer, cancer centers must perform excellent research, turn research results into therapies or preventives and prove that these work in the clinic, educate health-care professionals about the latest advances, and reach out to under-served populations. They must do all these things together.

NCI designed its cancer centers program to assist institutions in overcoming the many obstacles to the conquest of cancer. Centers are intended to enhance the potential of institutions for discovery and for the effective application of discovery to patients and people at risk for cancer. For many years centers contributed primarily to advances in cancer biology and therapy, but they are currently devoting increasing resources to newly emerging areas of opportunity, such as cancer prevention. The NCI continues to promote the establishment of new centers in relatively under-served locations so that the benefits of scientific advances can be realized broadly throughout the nation. Furthermore, strong linkages between the centers and NCI's Cancer Information Service have expedited the flow of reliable information on cancer to patients, their families, and the general population.

The core of NCI's support to its cancer centers is intended to foster excellence in research across a broad spectrum of scientific and medical concerns relevant to cancer. To assist discovery and its translation into direct benefit to patients and the general public, the NCI has awarded Cancer Center Support Grants (CCSG) to institutions that have a critical mass of excellent cancer-relevant scientific research. The CCSG has provided developmental and infrastructure support that, in turn, increases flexibility and responsiveness. This is particularly important now at a time of unparalleled scientific opportunity. The CCSG focus on research has stemmed from NCI's long-held conviction that a culture of discovery, scientific excellence, and multidisciplinary emphasis generates a cascade of tangible benefits extending far beyond the generation of new knowledge.

An NCI center's research components - the main objects of direct CCSG support - constitute a core that relates to a much larger assembly of cancer activities - clinical care, teaching, outreach, and education. These activities extend the benefits of research directly to patients, their families, and the general public. The promotion by cancer centers of effective outreach strategies, the fostering of cancer education, and the provision of information on cancer to professionals and the public complement the CCSG focus on research excellence.

NCI anticipates that the flexibility inherent in these CCSG guidelines will result in the funding of centers with a variety of scientific agendas. It is expected, for example, that centers will give greater emphasis to the particular challenges presented by special populations. The disproportionate burden of cancer in minority and other underserved groups is poorly understood

and badly in need of attention from the research community. Currently funded centers, particularly those with the "comprehensive" designation are expected to inform the public about their ongoing activities in these areas through public outreach and education.

The four parts of these guidelines contain the goals, policies, and procedures relating to the CCSG, as administered by the NCI Cancer Centers Branch:

Part I describes the general scientific, organizational, and administrative characteristics of centers that collectively determine eligibility and competitiveness for the CCSG.

Part II describes the policies for submission and review of new and competing continuation CCSG applications.

Part III provides the format and instructions for preparing a new or competing continuation CCSG application.

Part IV provides the format and instructions for preparing a non-competing continuation CCSG application.

## PART I: DESCRIPTION OF THE PROGRAM AND ITS POLICIES

### 1.0 History of the NCI Cancer Centers

There is a long history of national commitment to a system of integrated, multidisciplinary cancer research aimed at rapid translation of research findings into coordinated care for cancer patients. In 1960, the National Institutes of Health established the General Clinical Research Center Grants Program to provide an opportunity for universities to establish clinical research facilities. The purpose of this program was to provide a resource to enhance the quality of clinical investigation in a medical institution apart from general hospital care. A year later, in 1961, NCI announced three new grant programs that were to have a direct bearing on broadening the base of cancer research activity in the United States: the Cancer Research Facilities Grant (CRFG); Program Project Grants (PO1s) for cancer research; and Cancer Clinical Research Center Grants (PO2s or CCRCG). The intent of these funding mechanisms was to provide support for broadly based, multidisciplinary cancer research efforts.

By 1963, there was a fairly well defined cancer centers program of approximately $6 million at 12 institutions. The activities at these centers were diverse, including research in radiation therapy, medical oncology, and surgery, as well as basic science. Little effort was made to define or organize the cancer centers, except as a category within the NCI budget, until 1968 when the National Cancer Advisory Board (NCAB) provided guidelines and the concept of the planning, or exploratory grant. Congress envisioned a regional focus for the centers program and in 1968 the House Appropriations Committee recommended that geography be considered in the establishment of new cancer centers; this has continued to be an issue of congressional interest over the years. The Cancer Centers Branch of the NCI was formally conceived and established as a result of the National Cancer Act of 1971; the Act gave a broad mandate to the centers that includes research, excellence in patient care, training and education, demonstration of technologies, and cancer control. The initial model for a cancer center was drawn from several of the older, freestanding institutions: Roswell Park, Memorial Sloan-Kettering, M.D. Anderson, and Fox Chase (formerly, the Institute for Cancer Research).

In June 1973, NCI published information and guidelines for the Cancer Center Support Grant (CCSG), which had been approved in principle by the NCAB. At that time, two classes of centers were described: comprehensive and specialized. Comprehensive cancer centers were described as those conducting long-term, multidisciplinary cancer programs in biomedical research, clinical investigation, training, demonstration, and community-oriented programs in detection, diagnosis, education, epidemiology, rehabilitation, and information exchange. Specialized cancer centers were described as those which had programs in one or more, but not all, of the above areas in which research efforts, specialized study, or a form of patient treatment resulted in well-defined areas of emphasis. By the mid 1980's, cancer centers were classified as basic, clinical, and comprehensive, but in 1997 this was changed to the current system of classification, which includes cancer centers, clinical cancer centers and comprehensive cancer centers. The generic term “cancer center” is intended to include all basic laboratory and other types of highly specialized centers, while the term “comprehensive cancer center” is meant to include centers with highly interactive basic, clinical, and population sciences, as well as significant non-research activities in cancer outreach, education and information. While conceptually “clinical cancer centers” could include only clinical research, in reality nearly all clinical cancer centers supported by the NCI have a

critical mass of basic research, as well as developing population science based programs, and are striving to become comprehensive.

In 1992, a major conceptual change in the cancer centers program was implemented when all cancer centers were required to become "institutional," and include and integrate all of the relevant research of the institution across all organizational boundaries (e.g., departments, schools). This resulted in the consolidation of multiple CCSGs at the same institution into one center grant and placed much greater emphasis on the commitment of the institution to the cancer center concept and the authority of the cancer center director to implement that concept.

## 2.0 Cancer Center *versus* Cancer Research Center

The great majority of NCI's direct support to cancer centers is for the furtherance of research; most of the other activities critical to a center's service mission are supported by other means, such as patient revenues, philanthropic donations, and monies from state or local governments. NCI has therefore considered whether the term "cancer research center" might not be a more accurate descriptor of the activities that NCI actually reviews and funds through the CCSG. NCI's decision to retain "cancer center" as its designation emphasizes the close association within NCI-funded institutions of research and other critical components, such as clinical care, education, and outreach; indeed it is this intimate association that distinguishes these centers as a group from other "cancer centers," which, whatever their credentials as dispensers of medical care, lack the strong research base that will drive progress in the years ahead. Institutions lacking their own research base can quickly follow and adopt advances developed elsewhere, but they cannot lead, as can those centers that integrate research with service. [1]

## 3.0 Institutional Variety and the Cancer Center

No two cancer centers conduct research activities identically. In fact, the centers program has always exhibited impressive variety and has relied on the ability of centers to capitalize on unique research strengths. Cancer centers have developed in a number of different organizational settings, reflecting considerable diversity in the size and complexity of their research emphases. Some are independent, freestanding institutions dedicated entirely to cancer research. Others have been formed as clearly identifiable entities matrixed within academic institutions and promote interactive cancer research programs across departmental and/or university structures. Occasionally, multiple institutions have assembled as a formal consortium under clear, centralized administrative and scientific leadership. In every case, all the potential resources of the center must be integrated into a single research enterprise to include all departments, schools (e.g., Schools of Medicine, Schools of Public Health, Schools of Veterinary Medicine, Schools of Nursing, Schools of Allied Health, Schools of Pharmacy, etc.) and other pertinent structures of the institution.

Powerful pressures generated by reforms in the health-care marketplace continue to push the organization of cancer centers to new levels of complexity, as many mergers and strategic alliances blur long-familiar institutional identities. In recent years, NCI has favored a policy of the "one cancer center per institution or per group of closely collaborating institutions." The challenges in forming an NCI cancer center are very substantial, even when the center resides within a single institution on a geographically contiguous campus. Complexities in organization and coordination

[1] The NCI designation "cancer center" in no way constrains an institution from calling itself whatever it wishes.

increase significantly as additional institutions are added to the center. NCI does not wish to prejudge the kinds of administrative arrangements that will and will not succeed. Indeed, it seems likely that further developments in communications technology will make feasible those organizational arrangements that have heretofore been difficult to coordinate. In any case, all centers will be judged by the same scientific, organizational, and administrative criteria.

In addition, there are many smaller institutions, often with special access to underrepresented and minority populations, which are striving to become NCI cancer centers. In order to become cancer centers, these institutions must focus their research efforts more effectively on cancer. Bringing the benefits of research to these often geographically underserved regions of the Nation by linking research efforts to state-of-the-art cancer care, prevention, education, and information activities continues to be an important objective of the NCI.

## 4.0 The Essential Characteristics of an NCI Cancer Center

In the face of great institutional variety, the one common denominator of all successful NCI cancer centers is excellence in research. Successful cancer centers have scientifically strong research bases, organized into collaborative programs focused on cancer; from these programs new ideas are generated and multidisciplinary research is fostered. The foundation of support for the research base is investigator-initiated grants from the NIH and other funding sources that use rigorous peer review. (See Part II, 3.1.1)

In addition to excellence in research, a successful center is organized and administered in ways that maximize the potential of its research base and serve to make the whole much more than the sum of its parts. There are six essential organizational and administrative characteristics:

### 4.1 Cancer Focus

The existence of a clearly defined scientific focus on cancer research is usually quite clear from an examination of a center's grants and contracts, by the structure and objectives of its programs, and by the nature of collaborations between fundamental researchers and others who are more directly concerned with cancer applications. NCI recognizes that many aspects of fundamental biological research are resistant to neat labels and that the cancer-relatedness of particular areas of research should be a matter of flexible interpretation**.**

### 4.2 Institutional Commitment

With the requirement that centers must integrate all of their potential research resources and the advent of more complex organizational structures for centers, the commitment of the institution(s) to the center is critical. A strong commitment of the parent institution to the cancer center generally manifests itself in three major ways. The parent institution should recognize the cancer center as a formal organizational component and provide sufficient space, positions and discretionary resources to insure organizational stability and fulfillment of its objectives. The organizational status of the cancer center and authority of the center director within the institution should be comparable to that of other organizational units of similar importance and responsibility within the institution. The parent institution should also provide assurance of its commitment to continuing support of the cancer center in the event of a change in directorship and have in place a well-defined plan for this eventuality.

### 4.3 Center Director

The director should be a highly qualified scientist and administrator with leadership experience and have authority, as backed by the commitment of the institution(s), appropriate to manage the center, whether it is a small institution or a highly complex consortium. The director should serve the center and its programs in this capacity on a full-time or a significant part-time basis.

Centers seem to function most effectively when the director has the following authorities: (a) Control and periodic review of appointments of individuals as members of the cancer center. The ultimate authority for determining which individuals will be productive, contributing members of the cancer center belongs to the center's director. (b) Control of faculty appointments to the cancer center and, at a minimum, joint control (for example, with a department chairman) of recruitments of individuals who are to be members of the cancer center. (c) Full or shared control of specific research and resource space and equipment dedicated to the cancer center; this control provides the independent flexibility to enhance and develop the research capability and resource needs of the center. (d) If the center conducts clinical research, the center director or designee must have the authority to assure adequate access to both inpatient and outpatient facilities to achieve center objectives, and to oversee the appointment and performance of key individuals critical to linking oncology care to clinical research.

### 4.4 Organizational Capabilities

The organization of the center for the conduct of research and the evaluation and planning of center activities should promote joint initiatives as well as collaborations and interactions within and among its programmatic elements. The organizational arrangements should take maximum advantage of the parent institution's capabilities in cancer research; this is a particular challenge in a large and diverse university or when multiple institutions are included. Most successful centers have external advisory committees that provide independent input to the center director. The internal governance of a well-run cancer center generally includes processes for decision-making and priority-setting, as well as appropriate criteria and processes for determining and sustaining the membership of individual investigators in the center.

### 4.5 Facilities

Facilities dedicated to the center's shared resources, to the conduct of research, and to administrative activities should be appropriate and adequate to the task. All members of the cancer center need not be located physically in facilities controlled exclusively by the center, however, centers are more successful in establishing a distinct identity if they have a clearly identifiable physical location. Adequate administrative oversight of facilities providing shared resources is essential.

### 4.6 Interdisciplinary Coordination and Collaboration

There should be research activity in a variety of disciplines and a high degree of coordination, interaction, and collaboration among cancer center members that enhances and adds value to the productivity and quality of the research in the center. Such activities also should maximize the potential of the institution, whether small or large, to conduct

multidisciplinary and translational research. An actively functioning center promotes creative, innovative, high-quality, and interactive research opportunities.

## 5.0 Cancer Center Designations

All NCI-designated centers satisfy the six essential characteristics outlined in Part I, 4.0. NCI recognizes three general categories of centers:

A **comprehensive cancer center** has reasonable depth and breadth of research activities in each of three major areas: basic (Part I, 6.1), clinical (Part I, 6.2), and prevention, control, behavioral and population-based (Part I, 6.3) research AND exhibits a strong body of interactive research that bridges these scientific areas (Part I, 6.4). In the area of clinical research, a comprehensive cancer center is expected, to initiate and conduct early phase, innovative clinical trials and to participate in the NCI's cooperative group system by providing leadership and accruing patients to trials. In order to receive recognition as an NCI-designated Comprehensive Cancer Center, the center must meet the above scientific requirements as well as perform activities related to outreach, education, and cancer information in the community it serves (See Part II, 6.0).

A **clinical cancer center** has reasonable research activities in clinical oncology, with or without research encompassing the basic and/or prevention and control and population sciences. It is possible for an institution to compete successfully for a CCSG with clinical Programs only. However, when other areas of research are present, they should be linked collaboratively to the clinical research. A clinical cancer center is also expected to conduct early phase, innovative clinical trials and to participate in the NCI cooperative groups, as noted above.

The unmodified term **cancer center** refers to a cancer center having a scientific agenda other than that of a "comprehensive" or "clinical" cancer center. Such centers may have a research focus exclusively in the basic or population sciences, including epidemiology, diagnosis, immunology or other areas.

All NCI cancer centers, whatever their designation, receive their primary research support from sources that utilize NIH peer review or equivalently rigorous procedures.

## 6.0 Major Research Areas of a Center

**A Policy of Inclusion:** The purpose of a cancer center is to take advantage of the full range of capabilities of the institution(s) in cancer research. An institution or consortium of institutions having significant and meritorious Programs in two or three of the areas below (basic, clinical, prevention/control/population research) is expected to include and integrate all of these areas across departmental, school, institutional and other organizational boundaries into the research matrix of the cancer center. It is, for example, not acceptable for an institution having both basic and clinical activities to submit a CCSG application focusing on the basic or the clinical research area only. A major test of both institutional commitment and the quality of center leadership is to strengthen and integrate all major areas of research present within the institution or institutions that make up the cancer center.

A center's scientific activities will obviously be tailored to the needs of the particular area of science but will in all cases be characterized by excellence. Strong basic, clinical, prevention,

control, and population science research programs will derive significant research support from external sources that are peer reviewed by the NIH standard.

### 6.1 Basic Laboratory Research

There should be a reasonable breadth and depth of interactive scientific and technical personnel, laboratory facilities and financial support dedicated to basic research. Centers should use this base of support to promote multidisciplinary interactions between scientists engaged in basic cancer research and, where possible, to stimulate collaborations among investigators in basic and other areas. No particular organizational configuration is mandated by these guidelines. In some institutions basic research is carried out in biology groups; others incorporate basic activities within departments devoted to clinical, prevention, or population research. The organization should serve the science and be appropriate for the institution.

### 6.2 Clinical Research

A cancer center should be a major source of innovative clinical studies that can later be exported, for example, to NCI's cooperative groups or directly into general medical practice. Clinical studies should involve relevant laboratory research whenever possible. In addition to fostering translation from the laboratory and conducting early proof-of-principle clinical trials, it is appropriate and desirable for cancer centers to participate in major national multicenter studies coordinated by the NCI's clinical cooperative groups. The clinical Programs of the cancer center should provide mechanisms for the transfer of technology involving the development of innovative clinical protocols, participation in the development of effective new therapies, and the timely publication of information on advances in cancer medicine.

### 6.3 Prevention, Control, and Population Research

Cancer control research is the conduct of basic and applied research in the behavioral, social, and population sciences that, either independently or in combination with biomedical approaches, reduces cancer risk, incidence, morbidity, and mortality (NCI Cancer Control Program Review Group, 1997). Prevention research is directed at healthy populations, including those at high risk and/or those with detectable precancerous lesions, and cancer survivors (NCI Cancer Prevention Review Group, 1997).

Cancer prevention, control, and population research includes a wide range of possible investigations on the genetic, environmental, and behavioral determinants of cancer susceptibility, risk assessment, fundamental biobehavioral mechanisms, behavioral risk factor modification, the development of improved analytic and surveillance methods, chemoprevention, diet, human biomarker studies, early detection, and survivorship. Intervention research in cancer prevention and control should be based on a foundation of strong basic, clinical, and epidemiologic research. It is in this area that centers must demonstrate their understanding of the applications of both basic laboratory and clinical research findings to populations in order to achieve the ultimate goal of a reduction in the cancer burden.

The use of animal models, especially mouse models, is often an important step in basic science research. While they may have potential application to some aspects of population research (e.g., addiction, chemoprevention), most animal studies do not fulfill the requirement for population research. Centers must demonstrate their understanding of the applications of both basic laboratory and clinical research findings to human populations.

Outcomes of interest in cancer control, prevention, and population science research include not only preclinical (e.g., intermediate markers of carcinogenesis) and clinical indicators (e.g., incidence of second primary cancers in survivors), but also health behaviors (e.g., smoking cessation, changes in dietary behavior and screening adherence), appropriately informed decisions (e.g., genetic testing for cancer susceptibility), and psychosocial and health services outcomes (e.g., quality-of-life, quality-of-care, and cost-effectiveness research). Population outcomes also include changes in cancer incidence, survival, and mortality.

Cancer prevention, control, and population sciences research is inherently interdisciplinary. Core disciplines usually include, but are not limited to, epidemiology, medicine, genetics, health education, psychology, sociology, anthropology, economics, biostatistics, and health services research. The relevant disciplines represented in any center will vary depending upon programmatic focus.

Population research often serves as the vehicle through which a center can reach out to diverse communities to apply new findings, with the ultimate goal of reducing the cancer burden. The community outreach and education networks and the infrastructure of many cancer centers provide the foundation from which to conduct peer-reviewed research that investigates strategies for improving outreach, education, and information dissemination. The communication and dissemination of cancer prevention and control information is both a responsibility and a subject for research itself. Peer-reviewed, funded research grants in these areas are eligible for inclusion in the center's Program and access to CCSG-supported shared services, like other competitively funded research projects of the center.

It is recognized that not every cancer center will conduct research in all aspects of prevention, control, and population sciences. However, centers should be able to demonstrate grant support not only in epidemiology, but also in several areas of intervention research.

### 6.4 Multidisciplinary and Translational Interactions between Basic, Clinical and Prevention/Control/Population Research

A cancer center should feature vigorous interactions across its research areas. It should facilitate the rapid transfer of promising discoveries in the laboratory to innovative applications involving patients and/or populations, including those in prevention, detection, diagnosis, treatment, and survivorship. It should also facilitate the opposite movement of unique observations in patients and populations into relevant laboratory and focused experimental investigations. Once an opportunity is identified, a distinguishing feature of a cancer center is its ability to sustain productive interdisciplinary interactions within the center and/or between elements of the center. Although comprehensive cancer centers are

expected to have particularly rich repertoires of interactions across different areas, all cancer centers should promote collaboration among diverse elements of their membership. Productive interactions often transcend institutional boundaries and may involve external academic and/or industrial organizations. In geographic areas with multiple cancer centers, collaborations among centers may be appropriate. Centers having only basic research components are encouraged to seek collaborations with clinical units elsewhere, with industry, and with the NCI to facilitate the translation of fundamental discoveries into tangible patient benefit.

## 7.0 Community Outreach, Education and Dissemination Activities of Cancer Centers

The uniqueness of a research-oriented cancer center, particularly one with broad programs, is its dual capacity to generate new knowledge and to interact with its communities to assure that new knowledge benefits people. This interaction may occur in many ways.

Centers assure that medical advances are made available to people in the timeliest way possible. The provision of cancer information within their communities; establishment of formal programs for teaching, screening, therapy, and/or preventive interventions; creation of processes for transferring evidence-based interventions to communities; participation of center faculty in science programs for nearby school districts; and establishment of satellite clinics in underserved areas are a few of the ways that centers may extend their reach to patients, populations, and professionals who might otherwise not realize the benefits of scientific and medical advances. The strong interactions of NCI cancer centers with their communities provide the networking and organizational infrastructure required to conduct research to improve outreach, education and dissemination (See Part I, 6.3) and, ultimately enhance the health of populations.

## 8.0 Research Programs

### 8.1 Goals

Cancer centers exist to foster research, in part through the creation of formal **Programs**. A Program is comprised of the activities of a group of investigators who share common scientific interests and goals and participate in competitively funded research. Programs should be highly interactive and lead to the exchange of information, experimental techniques, and ideas that enhance the individual productivity of scientists and often result in collaborations and joint publications. Ultimately, the success of Programs is measured by the emergence of productive collaborations. How this is achieved will vary with the center and the needs of particular Programs. Formal and/or informal planning meetings, seminars and retreats, developmental funding of selected pilot projects, new shared resources, or key recruitments may be effective ways of promoting increasing levels of interaction.

### 8.2 Selection of Members

The selection of members of a center's Programs is in some ways the most critical decision made by the leadership. The functional and productive Programs that characterize successful centers are composed of individuals selected for their scientific excellence and, just as importantly, for their commitment to work together in a scientific community.

### 8.3 Characteristics of Programs

Programs should be of adequate size and scientific quality, should exhibit a high degree of interaction, and should be capably led. To insure adequate size and quality, a Program must have the equivalent of at least three peer-reviewed and funded research projects (e.g., % $RO1_1$ + % $RO1_2$ + % $RO1_3$ = 300%) from a minimum of three separate, independent principal investigators in the proposed Program. Peer-reviewed, funded research sub-projects of larger program grants (e.g., PO1s, P50s) may be counted as separate projects. Specific definitions of the kinds of projects that may be used to define a Program are given in Part II, 3.1.1.

Many Programs in cancer centers involve regular and sustainable collaborations with member scientists, who clearly strengthen and enhance value-added interactions and the scientific productivity of the research but who are formally not within the institutions that comprise the cancer center. While the funded research projects of these members cannot count toward the minimum requirement above, they can be included as part of the total research base of the Program, as long as these scientists are not from other NCI supported cancer centers. These members have full access to the shared resources and developmental funds of the CCSG.

The interactive attributes of a Program are shown most convincingly by collaborative research projects and joint publications. Colloquia, joint seminar series, and other evidence of meaningful interchange may also serve to cement interactions around related or common goals. In addition, effective leadership provides intellectual stimulation, cohesion, focus, and direction.

## 9.0 Cancer Centers and the CCSG

### 9.1 Relation of CCSG to the Cancer Center as a Whole

The many functions of a cancer center in the areas of research, patient care, education, and outreach rely on a diverse base of support including federal, state, and local government; private industry and foundations; third-party payers; and private philanthropy. Within this very broad range of activities, the CCSG has a comparatively narrow focus. The CCSG is intended to provide support for activities related to the peer-reviewed research base of the cancer center. Although the CCSG usually accounts for a relatively small proportion of a center's operating budget, it supports an important part of the research infrastructure, stimulates innovation, and encourages interdisciplinary and collaborative research. The presence of an effective cancer center also fosters good patient care through the close association of care and research. The back-and-forth movement of research findings between basic, clinical, and population research venues distinguishes the research-oriented cancer center from organizations dedicated only to care and service. Research in cancer centers contributes directly to the continuous advancement of services provided by the center and its close regional affiliates and offers patients options for prevention, diagnosis and treatment that may not be available elsewhere.

## 9.2 Sources of Budget Flexibility in a CCSG

The CCSG assists institutions by providing support for the research infrastructure, such as program leaders, center administration, shared resources and services, and developmental funds for new initiatives. Funds for these purposes serve to stabilize the organization and functioning of a center, provide shared resources that are not attainable through other granting mechanisms, and provide badly needed sources of flexibility that enable investigators in a cancer center to pursue new scientific opportunities as they arise.

CCSGs are now administered under the provisions of Federal Expanded Authorities (http://odoerdb2.od.nih.gov/gmac/nihgps_2001/part_iia_5.htm#_Toc.504811854). With some limits, this gives cancer centers flexibility to carry over funds from one year to another within a project period without prior NCI prior approval. In accordance with the NIH Grants Policy Statement, unobligated funds of 25 per cent or less of the total amount awarded the current year award (excluding any funds restricted by the terms of the award) can be automatically carried over without prior NCI approval. Requests for carryover of unobligated funds in excess of this amount will be reviewed by NCI to ensure funds are necessary for completion of the project; additional information, including a revised budget, may be requested from the grantee as part of this review. If it is determined that some or all of the unobligated funds are not necessary to complete the project, the NCI may take one of several actions: 1) use the balance to reduce or offset NIH funding for a subsequent budget period, 2) restrict the grantee's authority to carry over future unobligated balances, or 3) a combination of items 1 and 2, above. **The Financial Status Report must specify the amount to be carried over.** Any amount not specified for carryover may be used as an offset for a subsequent budget period.

To enhance the flexibility inherent in these grants, NCI policy permits center directors considerable authority to move funds between budget areas in response to changing needs and opportunities. The center director has the authority to increase any budget category up to 25 per cent over the level approved by peer review without prior NCI approval, provided that the areas into which the funds are moved were rated no less than excellent by peer review. The rebudgeting of funds into areas rated less than excellent by peer review requires prior NCI approval.[2] All fund transfers between areas should be included in the non-competing application, along with appropriate explanation. At the time of the next competing renewal, the application will reflect the culmination of rebudgeting decisions made by the center director over the project period. Competing continuation applications should therefore account for significant rebudgeting decisions with appropriate explanations and outcome information.

## 9.3 Shared Resources and Services

This category provides access to technologies, services, and scientific consultation that facilitate scientific interaction and enhance scientific productivity. The establishment and support of shared services for an entire center provides a measure of stability, reliability, cost-effectiveness, access to specialized technology and methodology, implementation of

[2] Center directors are encouraged to discuss with NCI the movement of funds into area rated less than excellent, when doing so would significantly improve the quality of an area important to the center. The need for prior NCI approval is not meant to discourage centers from contemplating such transfers.

cutting edge technologies, and quality control that would be difficult to achieve otherwise. Center investigators who have current peer-reviewed, funded projects or receive support from the CCSG developmental funds are the primary beneficiaries of all shared resources and services paid for by the CCSG.

Although demand and level of usage are important guides in evaluating requests for CCSG support of shared resources, certain technically sophisticated resources critical to a center's research progress are not adaptable to high-volume operation (e.g., x-ray crystallography, preparation of clinical grade gene therapy vectors, proteomics). Similar issues apply in evaluation of cores established for support of prevention/control/population studies (i.e. family ascertainment, health communication, tracking, nutrition support). Such resources should be judged for scientific value, the interests of past and potential new users, accessibility to cancer center members, and the effectiveness and fairness of the process for setting scientific priorities for its use.

NCI's intent is that a center may propose those functions that it wishes to have funded as shared resources; the center is then responsible for defending its choices and the associated budget request before peer review. While it is not possible to provide an exhaustive list of shared resources and services supporting basic, clinical and population science research programs, **examples** of shared resources supporting basic, clinical, and prevention/control/population sciences are presented below This list may not include those resources that a particular center might most keenly wish to support with CCSG funds.

*centralized equipment; general and specialized animal colonies; specialized instrument shops; nucleic acid sequencing/synthesis labs; amino acid analysis HPLC facilities; cell sorting; chemical and drug synthesis labs; mass spectrometry labs; electron microscope facilities; media preparation; microarrays and proteomics facilities and services;*

*histology and pathology services; tissue culture; tumor procurement service; immunology or immunoparameters testing facilities; radioisotope facilities; radiation facilities and services; clinical data management and protocol tracking for clinical trials;*

*biostatistics; clinical and population science economic analysis units; research-related informatics; other biospecimen (e.g., serum) procurement services; clinical and population science measurement units; survey research facilities; intervention cores; high-risk family registries.*

### 9.3.1 Biostatistics

This is a shared resource central to the mission of many centers, particularly those that perform clinical or population research. Its centrality to the entire enterprise implies the need for special consideration. Participation by statisticians in many collaborative activities of the cancer center is eligible for CCSG support. For

example, salary support is allowable for participation in cancer-center pilot projects, assistance to center investigators in developing research projects, analyses for publication, and the development of methodology that is clearly and closely related to the support of specific projects within the cancer center. The CCSG is not intended to support independent, investigator-initiated research in statistical methodology, for which statisticians, like other scientists, should be supported by project-specific grants. Nor is it typically intended to support a significant collaborative role on a funded research project, since the statistician would normally be supported by an appropriate time-and-effort allocation as a collaborator on that grant. CCSG support may be particularly useful for unanticipated needs for statistical collaboration arising in the center. Peer review of a Biostatistics unit in relation to a center's activities should utilize appropriate criteria (see Part II, 5.2.9.1).

### 9.3.2 Clinical Protocol and Data Management Shared Resource

This resource provides central management and oversight functions for coordinating, facilitating and reporting on the cancer clinical trials of the institution or institutions that define the center, whatever the origin (local, industrial, cooperative group, or other). As a tool for management of a center's clinical research program, this resource complements the Protocol Review and Monitoring System described in Part I, 9.4. This resource provides a range of management and quality control functions, including a central location for cancer protocols, a centralized database of protocol-specific data, an updated list of currently active protocols for use by center investigators, and status reports of protocols. Quality control functions might include centralized education and training services for data managers and nurses, data auditing, and oversight of data and safety monitoring to comply with federal requirements. Centers with a highly complex clinical trials program might choose to split these functions into separate resources, but, in each case, the same review criteria will be used.

The resource allows oversight and quality control for the Center's entire clinical trials effort that is a step removed from tasks involved in the actual direct conduct of individual trials, (such as data entry). Therefore, the CCSG request for this resource should not duplicate, replace, or make up for reductions in funding provided through the individual grants and contracts supporting the studies.

Peer evaluation of the request for CCSG support is based on the quality of the management and oversight functions performed and the quality and diversity of the center's clinical trials effort.

#### 9.3.2.1 Data and Safety Monitoring

NIH policy (http://grants2.nih.gov/grants/guide/notice-files/not98-084.html), with additional description at (http://grants1.nih.gov/grants/guide/notice-files/NOT-OD-00-038.html), requires that grantees have procedures in place for data and safety monitoring (DSM) of clinical trials. This is to ensure the safety of participants, the validity of data, and the appropriate termination of

studies for which significant benefits or risks have been uncovered. DSM plans must be in place before grants supporting such studies can be funded.

The NCI-designated clinical and comprehensive cancer centers often have intensive clinical research portfolios that include a large number of trials. It makes sense for such institutions to have in place *institutional* plans for an effective DSM process. An effectively formulated and executed institutional plan should improve both participant protection and the conduct of trials and should greatly reduce the need to set up new policies on an *ad hoc* trial basis. Investigator-initiated grant applications originating from an NCI-designated cancer center may supply the appropriate portion of the DSM plan in the human subjects section of a grant application and specify how it applies to the proposed trial, or may tailor the institutional plan to meet the conditions of the particular trial. NCI does not stipulate the details of the DSM process since the clinical trials portfolios of cancer centers may encompass a wide spectrum of trial types. It is expected, however, that every NCI-designated cancer center will have an institutional Data and Safety Monitoring Plan (DSMP) in place that meets the specific requirements of the NCI (http://cancer.gov/clinicaltrials/conducting/dsm-guidelines/page2). Example plans are available (http://www.nci.nih.gov/ClinicalTrials/conducting/dsm-example-plans). See Part II, 4.3 for further information).

### 9.3.3 Informatics

With recent advances in the basic, clinical, and population sciences, scientific progress depends increasingly on the management, sharing, and analysis of data from diverse sources. In cancer centers, informatics expertise and resources are critical core functions. It is appropriate for the CCSG to support applications of informatics directed toward cancer research.

Shared resources that provide informatics technology and applications to funded center investigators are eligible for CCSG support. These might, for example, include the acquisition, maintenance, and integration of database systems for clinical trials or studies in populations; data extraction, storage, and analysis tools for genomics, proteomics, or molecular structure; a database annotating a research repository involving human specimens; and tools that enable sharing of data sets with collaborating investigators in related areas of research. The intent of this resource does not extend to performance of specific research functions, such as data entry, for individual research projects or clinical trials.

For new informatics approaches, support for pilot exploratory studies can be provided through the developmental funds category of the CCSG under Technology/Methodology Development Projects, as described in Part II, 3.2.4.4 of these guidelines, e.g., exploring novel uses of informatics to resolve molecular signatures, or development of new informatics tools for making possible meaningful analysis of clinical data from different databases. For fully developed ideas needing

support, investigators should seek research support by traditional NIH (or other) project-specific granting mechanisms.

As the interoperability of independently developed informatics systems is an important goal of the research community, it is expected that informatics development efforts supported by CCSG funds will be in compliance with evolving standards articulated by the NCI, the scientific community, and standard-setting organizations in the medical and bioinformatics areas.

### 9.4 The Protocol Review and Monitoring System (PRMS)

A particularly important function for centers involved in clinical research is a mechanism for assuring adequate internal oversight of the scientific and research aspects of all the cancer clinical trials in the institution or institutions that formally comprise the center. A cancer center should have a mechanism in place for assuring that its clinical resources are engaged in the best way for scientific purposes. This function is complementary to that of an Institutional Review Board (IRB), which focuses on the protection of human subjects. The PRMS is not intended to duplicate or overlap the responsibilities of the IRB nor is it intended to perform an auditing or data and safety monitoring function. Its focus is on scientific merit, scientific priorities and the scientific progress of the clinical protocol research of the center (Part II, 3.2.7.1). The PRMS should have the authority to open protocols that meet the scientific merit and scientific priorities of the center and to close protocols that do not demonstrate adequate scientific progress.

With regard to scientific merit evaluation, the PRMS is expected to evaluate all cancer center trials, whether derived and supported from institutional sources or from industry. However, the PRMS is not required to duplicate the results of traditional peer review, which includes protocols supported by the various NIH mechanisms (e.g., R0ls, U0ls, U10s, P0ls, and P50s), and clinical research protocols approved by the NCI's Cancer Therapy Evaluation Program or the Cancer Control Protocol Review Committee. All trials reviewed by the PRMS for merit, or receiving traditional merit review as noted above, have access to CCSG-supported centralized resources, such as protocol and data management, informatics and biostatistics. While it is NCI's intent to stimulate innovative and scientifically productive interactions between centers and industry (see Part I, 9.5), only those trials from commercial sources in which center investigators have played a major role in conception and design, and which have been approved by the PRMS, are eligible for CCSG support.

Assessing the function and effectiveness of this mechanism is an extremely important job of peer review; specific expectations for its organization and functioning are outlined in Part II, 3.2.7.

### 9.5 Interactions with Private Industry

NCI cancer centers may serve as important multidisciplinary research platforms for testing the value of the most promising products of industry relevant to the early detection, prevention, diagnosis and treatment of cancer. This may range from introduction of new diagnostic tests or therapeutic agents through clinical trials designed by center scientists to the development and field-testing of new technologies important to advancing the discovery

process. Centers are therefore encouraged to engage in scientifically promising studies with industry. Such studies can benefit from CCSG resources in a number of ways (e.g., Part II, 3.2.4.4 Technology/Methodology Developmental Funds), as long as they are consistent with current federal regulations regarding use of grant funds involving industrial partners. Eligible studies are those where the center plays a key role in both the intellectual and operational aspects and the findings are made available to the biomedical research community.

## 10.0 Overview of the Process for Application and Review of the CCSG

Details of the application and review process are given in Part II, and only general comments are in order here. The essential purpose of a CCSG is to foster excellent science and productive interactions within institutions that already have a substantial research base. The application for a CCSG and the presentations during its review should be focused on demonstrating convincingly the overall excellence of the research base, the extent of the value added to the cancer center by CCSG support, and the strength and vigor of the leadership of the cancer center. Supporting materials should be presented in sufficient detail to convince peer review that all requests for resources are justified.

Before an application is submitted, staff members of the Cancer Centers Branch may assist applicants by providing advice on a range of matters relating to the cancer centers program as a whole, funding policies, and strategies for assembling a cogent and persuasive application. In addition, all new, competing continuation, and amended/revised applications involving budget requests of $500,000 or more in direct costs, must, by NIH policy, contact NCI program staff at least six weeks prior to the receipt date and obtain prior agreement to accept the application for review. (See Part II, 2.3.1)

After submission of the application, the peer-review process is overseen by a scientific review administrator (SRA), located in NCI's Division of Extramural Activities. Between submission and the completion of the peer review process all communication by the applicant must be directed to the SRA responsible for their review. The SRA's responsibility is to supervise the review process in a manner that ensures a technically competent and unbiased review. While the application is in review, program staff may serve as a resource to the SRA on matters relating to program policies and guidelines, in accordance with NIH policy.

Peer review of all CCSG applications generally involves a site visit to the applicant's institution, followed by consideration of the application and site-visit report by a "parent committee." For cancer center reviews this is Subcommittee A, NCI Initial Review Group (NCIIRG). Following assignment of a priority score and the evaluation of the scientific requirements for comprehensiveness (Part II, 5.2.15) by the parent committee, action by the National Cancer Advisory Board completes the peer-review process. Final funding decisions are made in accordance with the NCI's plan for the Cancer Centers Branch during each fiscal year.

The NCI Executive Committee (EC) makes the final determination of whether a center will receive the comprehensive designation. If the CCSG application has met the scientific requirements in peer review, the EC requests and reviews a summary report of the center's activities in outreach, education, and information dissemination and verifies the applicant's willingness to make this

information available to the community it serves and to keep information accurate and up-to-date (Part II, 6.0). After this review, the EC makes its final decision about formally recognizing the center as an NCI-designated Comprehensive Cancer Center.

## 11.0 Peer Review

The scientific merit of a center's proposal is assessed by a panel of peers. Proper review of a complex center, whether at site visits or at the deliberations of the parent committee, requires participation of peers: scientists with substantial experience, a broad perspective on cancer research, and a high degree of scientific, organizational, and administrative sophistication. Breadth is a necessary component of peer-review groups. Some individuals will come from other cancer centers and will have their own perspective on what is required for a fully successful operation; others will participate because of their substantive scientific expertise in particular areas of research and may come from institutions or departments having no relationships with a cancer center. As with other investigator-initiated grant programs at the NIH, the validity of the evaluative process rests largely with the skill of peer reviewers and their willingness to spend the necessary time and energy assuring that the centers program exists for the promotion of scientific quality. Additional comments about the peer review of center grants are in Part 2, 5.1.

## 12.0 Major Policies on Budget

### 12.1 Competing Continuation Applications (Type 2) - Size of Total Request

Applicants should contact the Cancer Centers Branch to determine the current status of any formal budget caps and their particular provisions. In the absence of a formal budget cap, the following policy applies:

Centers have the flexibility to develop budget requests in relation to the size of their cancer-relevant research base. NCI recognizes that it is one of many sources of funding available to centers for support of their research programs. For purposes of benchmarking the size of awards, applicants and reviewers should note that, a ratio of 0.2 between the size of the CCSG award and the size of the NCI portion of a center's research base (calculated for the last completed fiscal year) appears to serve most centers adequately. This ratio calculation signifies nothing about the importance of any particular source of research funds to the center; it is simply a practical, verifiable index that can be used as a reference point for estimating the adequacy of the size of a CCSG. Centers whose budget requests significantly exceed a ratio of 0.2 should be prepared to convince peer review by providing compelling information that the dollar size of their total research base, the close and sustained integration of investigators from affiliate institutions, and the scientific excellence of the center's research programs clearly justify an award greater than the benchmark ratio.

### 12.2 Competing Continuation Applications (Type 2) - Increases

See section 12.1, above, for information about potential budget caps in any given Fiscal Year before following the guidance below.

There are no restrictions on the allowable increase in the budget request over the previous year. Applicants are free to request any dollar amount that they can convincingly justify to peer review. The appropriate size of a CCSG request in any competitive renewal should

relate closely to the science that it is intended to support. Peer review should scrutinize all budget requests carefully to assure that they are well justified. This is particularly so for applicants requesting more than 20% of the institution's NCI research base. As is detailed further in Part II, peer review will pay attention to all budgets in relation to the quality of the underlying science in the center's research base. NCI's ability to pay awarded CCSGs at full recommended levels varies from year to year with the size of the congressional appropriation.

### 12.3 First-Time Applications (Type 1)[3]

Budget requests from a center applying for first-time funding (this includes centers that may have lost funding in the past and are reapplying without a current CCSG in place) should not exceed $1,000,000 (direct costs) for the first year (the budget in subsequent years will generally receive cost-of-living adjustments). Please note that a budget request exceeding the 0.2 ratio discussed in section 12.1 above, will draw the close scrutiny of peer reviewers; furthermore an award also can be reduced administratively at the NCI's discretion. Awards may be for 3-5 years depending on what has been requested and the results of peer review. The cap on the budget request for a first-time application is largely predicated on the very limited track record of a newly applying center as an organizational entity.

### 12.4 Supplemental Applications

#### 12.4.1 Competing Supplemental Applications

Competitive supplemental applications are accepted by the NCI for peer review and funding consideration only under exceptional circumstances. Because supplemental applications are particularly difficult for peer reviewers to evaluate outside the context of the overall CCSG, such applications will be accepted only when there are clear and compelling reasons for doing so. These might include, for example, a fundamental change in the parent institution of the cancer center, such as a formal merger with another health care or research institution. In all cases, the applicant must clearly establish that waiting for the next competitive renewal application cycle would have a long-term effect on the success and/or progress of the cancer center. Centers wishing to submit supplemental applications should make a written request to the Cancer Centers Branch Program Director explaining the exceptional circumstances. Written approval from the Program Director to submit the supplement is required and will depend on the following: 1) the strength of the arguments presented in the request; 2) the ability of the NCI to provide peer review of the request in a timely manner; and 3) the anticipated availability of resources to pay the request should it receive a competitive score in peer review.

Supplemental applications to correct deficiencies noted previously in peer review will not be accepted.

[3] Type I applications from centers with a prior and recent CCSG award that has been phased out because of an unfundable priority score may present situations meriting special consideration. NCI will consider these cases individually as potential exceptions to the general limitation on budget requests.

### 12.4.2 Administrative Supplements

Depending upon the availability of funds, the NCI will consider administrative supplements to CCSGs to pursue important, short-term scientific opportunities that need immediate attention and would not be possible to initiate and sustain through the normal, competitive grant process (e.g., RO1s). Centers wishing to request supplemental funds should contact the Program Director of their grant to inquire about availability of funds in this category.

## 13.0 Funding Policies

Peer review of new and competing continuation applications over the course of a fiscal year results in a range of priority scores for approved applications. Each year, NCI establishes a funding policy for the centers program that aims to separate applications deserving continued funding from those that do not. Applications with scores meriting funding are paid according to a sliding scale based on their priority scores. Applications judged not to merit funding will receive either no funding (new applications) or phase-out funding at negotiated levels (competing continuation applications). During the period of phase-out, the center should be able to revise and resubmit an amended application that addresses the concerns of peer review.

While there is no cap to limit the size of individual awards, the results of the peer review process and the NCI fiscal year funding plan will determine the overall budget for the NCI Cancer Centers Program. Peer review will play a major role in judging the merit of budget requests and in guiding the decisions of NCI about the funding of individual grants. Clearly however, whether there is a budget cap or not, other issues will factor into the ultimate decision about funding levels for individual cancer centers, such as the overall availability of funds and the need to assure entry of meritorious new centers into the program. Each year the funding plan for the Cancer Centers Program will be discussed and approved by the NCI Executive Committee.

In years of significant budgetary constraint, funding plans will spread the impact over the entire program (non-competing as well as competing grants) in order to reduce the adverse impact on those institutions that happen to be competing during a difficult year. If funds become available in future years, restorations may be considered as appropriate.

While many institutions have had funded cancer centers for a long time, the program has exhibited a rather significant level of turnover. A center that has lost its CCSG may reapply and recompete successfully for CCSG funding once its deficiencies have been corrected.

## 14.0 The Relationship of Centers to Each Other and to the NCI

Cancer centers relate to each other in complex ways. They are crucial nodes in the NCI's multicenter trials programs in treatment and prevention. In the years ahead, cooperation among centers will be critical for the success of NCI initiatives in molecular and imaging diagnostics, early detection, and cancer genetics and other areas. Centers collaborate with each other to realize common goals outside the sponsorship of NCI, as shown by the formation of voluntary consortia of centers and by joint participation in collaborative studies sponsored by private industry. Conversely, centers also sometimes find themselves in direct competition with each other, particularly when multiple centers are located in the same geographical area.

As a support mechanism for a center's research base, the CCSG is focused on the individual cancer center. The extent to which a center's investigators use CCSG resources to enhance collaborations with scientists in other institutions will vary with time and from center to center. The NCI will not require that CCSG resources be utilized to foster specific inter-institutional activities.

Cancer centers have a history of being partners with the NCI to expedite the exploration and implementation of high priority research opportunities. When NCI wishes to enable investigators to take advantage of emerging opportunities, has the need to stimulate an important initiative quickly, or believes that there would be benefit from consortia actions, it will make the necessary resources available separately. Such opportunities may be in the form of administrative or competitive supplements to the CCSG if they are time-limited and within the scope of the CCSG. This kind of partnership would not apply to activities requiring substantial sums or a long timeframe to accomplish. In these instances, independent funding vehicles would be required.

## PART II: GUIDELINES FOR SUBMISSION AND REVIEW OF NEW AND COMPETING CONTINUATION APPLICATIONS FOR THE CANCER-CENTER SUPPORT GRANT

### 1.0 General Information

These guidelines outline the National Cancer Institute's procedures for submission, acceptance, and review of an application for a Cancer Center Support Grant (CCSG). CCSGs are provided through the P30 grant mechanism to qualified applicant institutions that wish to become NCI-designated Cancer Centers and have successfully met a series of competitive standards associated with scientific and organizational merit. These guidelines should be read in close conjunction with Part I of this document, which describes the philosophy, general characteristics, and major policies of the cancer centers program. For more information, call or write to:

Chief, Cancer Centers Branch
Office of Centers, Training and Resources
National Cancer Institute
6116 Executive Boulevard, Suite 700, MSC 8345
Bethesda, Maryland 20892-8345 (for Express mail use Rockville, MD 20852)
Tel: 301/496-8531
Fax: 301/402-0181

### 2.0 Submission, Acceptance, and Review of Competing Applications

#### 2.1 Eligibility

##### 2.1.1 Research Institutions in the US

##### 2.1.2 Not More than One CCSG Per Institution

The CCSG aims to take maximum advantage of the spectrum of resources available within a cancer-research community. Because the major purpose of a cancer center is to catalyze interactions among research groups from diverse departments and disciplines, different components of an institution should not submit separate CCSG applications. Applications are accepted from closely collaborating institutions (e.g., formal consortium) that wish to form a center and are submitting a single application. See Part I, 3.0 for a discussion of some of the issues involved in consortia formation.

##### 2.1.3 Funding Base

For purposes of eligibility an applicant institution must have a base of at least $4,000,000 in annual direct costs of peer-reviewed, cancer-related funding in the institution as a whole. While most NCI cancer centers far exceed this minimum funding base, the NCI maintains this level to attract smaller institutions and increase the diversity of cancer centers. If the cancer center is formed from a consortium of institutions (i.e., if several different institutions are functioning as full participants in the center and not as affiliates), the funding base of the center will be the sum of the funding bases of the individual institutions making up the center. The criterion for " cancer relatedness" is in conformity with the Referral Guidelines of the National Cancer Institute, which define, within the NIH, the areas of research appropriate for

funding by the NCI. Funding that may and may not be applied toward the minimum is defined below. NCI staff will assist with any problems of interpretation.

**For Determining Eligibility to Apply for a CCSG**

#### 2.1.3.1 Sources of support that may be included

**NCI Support.** This includes the following peer-reviewed grants, cooperative agreements, and contracts: This includes the following prefixes: R01, R03, R18, R21, R24, R25E, R25T, R29, R33, R35, R37, R41, R42, R43, R44, R55, P01, P20, P50, U01, U10, U19, U54, U56, N01 (see 2.1.3.2 below), T32, K and F series awards.

**Support by Other NIH Institutes and Funding Organizations**. For purposes of determining the eligibility of applicants for a CCSG, it is necessary to submit information relating to non-NCI support only if the applicant's NCI support is below the minimum. Grants and research contracts from other NIH institutes, and grants from the National Science Foundation (NSF), the American Cancer Society (ACS), and a number of other funding organizations can be included in the minimum if they comply with the NCI Referral Guidelines; an updated list of approved organizations is available at http://cancer.gov/cancercenters/funding.html Awards from other funding organizations that utilize a peer review and funding system equivalent to that of the NIH may also apply toward the minimum; these funding sources must be approved by the NCI prior to application.

#### 2.1.3.2 Sources of support that may not be included

R13 grants, awards from commercial organizations, and NCI or NIH contracts that fund primarily the production of materials and/or services in support of research (e.g., SEER Contracts).

## 2.2 Limitations and Dollar Caps on CCSG Applications

### 2.2.1 Time Limitations

CCSG awards will be for periods of up to five years. Peer reviewers may elect to recommend shorter funding periods if they believe that earlier evaluation is warranted.

### 2.2.2 Dollar Ceilings on New (Type 1) Applications

A new application is limited to a request for no more than $1,000,000 in direct costs in the first year with cost-of-living adjustments in the non-competing years. An actual award will be based on the peer-review budget recommendation, which may be less than this maximum.

### 2.2.3 Dollar[4] Ceiling (Cap) on Renewal (Type 2) and Supplemental (Type 3) Applications

Consult the Cancer Centers Branch for any policies in effect during a given Fiscal Year for limiting the increases in budget requests. In general, there are no restrictions on the allowable increase in the budget request of a renewal application, but peer reviewers will scrutinize requests that exceed the 0.2 ratio (See Part I, 12.1 and 12.2). Applicants should note Part I, 12.4 regarding the special circumstances for accepting and reviewing supplemental applications.

### 2.2.4 Page Limitations

The CCSG application should be as concise as possible. Page limitations on certain individual sections of the application are detailed in Part III, which contains formatting information for the application.

## 2.3 Submitting the Application

### 2.3.1 Agreement to Accept an Application

By NIH policy (http://grants1.nih.gov/grants/guide/notice-files/NOT-OD-02-004.html), all applicants for unsolicited applications - new (Type 1), competing continuation (Type 2), competing supplement (Type 3), and amended/revised versions of the preceding grant application types- requesting $500,000 or more in direct costs must contact the relevant Institute and obtain agreement from Institute program staff via e-mail or a letter to accept the application for review at least six weeks prior to the anticipated submission date. When the application is eventually submitted, it must be accompanied by a cover letter identifying the Institute staff member who agreed to accept the application. This policy requires an applicant to obtain agreement for acceptance of any such application and any subsequent amendment. In addition, if for any reason an application is not submitted by the expected submission date, these procedures will need to be repeated for any future submission date. According to NIH policy any application that does not include a cover letter containing the required information will be returned to the applicant.

By NCI policy, a center applying for a CCSG must have a base of at least $4,000,000 (annual direct costs) of peer reviewed cancer-related funding (defined in 2.1.3). If the minimum funding base cannot be confirmed by a simple examination of the NCI's grants database, then the applicant should provide the following additional information: (1) copies of existing documentation (e.g. award statements) of NCI-supported research projects relevant to eligibility (see Part II, 2.1.3.1), showing the PI, grant or contract number, title, direct-cost funded level for current year and total award period; (2) copies of existing documentation of all non-NCI-supported research projects to be used to reach the $4,000,000 minimum, showing PI, funding agency, identification number of funding agency, title, direct-cost funded level for current year, and total award period. Also, copies of existing descriptions of each non-NCI-supported research project should be provided.

[4] See footnote to Part I, 12.3.

The Cancer Centers Branch will notify the potential applicant in writing or by e-mail that the applicant is eligible to submit a CCSG application and that NCI is willing to accept it for review.

### 2.3.2 Preapplication Consultation (Highly Recommended)

A preapplication consultation, while not required, is highly recommended. Experience has shown that applicants who participate in the consultation generally present applications that fare better in the review process. The consultation should be scheduled well in advance of the due date for submission and is intended to help the applicant understand the CCSG guidelines and discuss strategies for preparing a competitive application. NCI staff will clarify the intent of the guidelines, discuss funding trends, share generic information about reviews of CCSG applications from similar institutional settings, and describe the peer-review process. The applicant can define which issues would be most helpful to discuss and then work with NCI program staff to decide what information is most appropriate to provide. The following are examples of items that help NCI staff understand the plans of first-time applicants:

- A brief description of the background and responsibilities of the cancer center director and the key senior leaders of the center.
- A diagram showing the reporting, programmatic and advisory structure of the center and how it relates to the organizational structure of the institution as a whole, and a list of external advisory board members.
- A brief description of how the center expects to meet the six essential organizational and administrative characteristics of an NCI-supported cancer research center (See Part I, 4.0).
- A brief description of the major scientific Programs and the projected leadership, participants, and criteria for selecting Program members, if these are known (See Part I, 8.0).
- Direct-cost budget estimates (in aggregate, not itemized) for the first year for each allowable budget category and individual shared resource.
- An addendum listing the currently active peer-reviewed research grants, cooperative agreements and contracts, grouped by the program elements that will form the entire research base of the cancer center. Typically, this listing will be longer than the research base used to meet eligibility requirements. For each project, the principal investigator, project title, direct-cost dollars for the current year, and the total project period (e.g., 05/01/02 - 04/30/07) should be listed.

### 2.3.3 Evaluation of Comprehensiveness

There are no special provisions in the CCSG application format that allow an institution to specifically apply for the comprehensive designation. If an applicant does not wish to be reviewed for comprehensive status, then he/she should so indicate in a cover letter with the CCSG application. Otherwise, the scientific peer review of comprehensiveness will be performed by the parent review committee.

### 2.3.4 Key Dates in the Grant Review and Funding Process

| Preapplication Consultation* | Sept-Nov | Jan-Mar | May-Jul |
|---|---|---|---|
| Application Receipt Date | Feb. 1 | Jun. 1 | Oct. 1 |
| Site Visit | May/Jun | Sept/Oct | Jan/Feb |
| Review Committee Meeting | Jul/Aug | Nov/Dec | Mar/Apr |
| NCAB Meeting | Sept/Oct | Jan/Feb | May/June |
| Earliest Start Date | Dec. 1 | Apr. 1 | July 1 |

*Highly Recommended

If there is any difficulty in meeting receipt dates, NCI staff should be notified in advance. For purposes of review planning, the Scientific Review Administrator may request preliminary information several months prior to the actual application receipt date.

### 2.3.5 Where to Send the Application

An original and three copies of the CCSG application should be submitted to the Center for Scientific Review (CSR), NIH, according to the instructions in the Grant Application Form-398 (5/01) kit. For a new or competing continuation application, this must be accompanied by a cover letter naming the NCI staff person who agreed to accept the application for consideration (See Part II, 2.3.1).

In addition, at the same time the application is submitted to CSR, please send two complete copies under separate cover to the NCI directly; this will greatly assist NCI staff in scheduling reviews and determining whether additional information is needed for the review. The NCI address is:

Referral Officer
National Cancer Institute
6116 Executive Boulevard, Room 8062, MSC 8329
Bethesda, Maryland 20892-8329 (for Express mail use Rockville, MD 20852)
Tel: 301/496-3428
Fax: 301/402-0275

### 2.3.6 Modifications After Submission

After grant submission, all correspondence should be directed to the Scientific Review Administrator (SRA). Minor, unavoidable modifications of the application can be accepted up to one month prior to the site visit without compromising the review process. Major modifications, however, may result in deferral by the SRA to

the next round of receipt and review. Additional factual clarifications may be received between the site visit and the meeting of the parent committee [the NCI Initial Review Group (Subcommittee A)]. Generally, new material should not represent major changes in the application as written and/or presented. The decision on whether to accept modifications of the application or additional information or to defer the application rests entirely with the SRA.

## 2.4 Acceptance of the Application

Upon receipt of an application, the SRA will conduct a thorough review of the submitted materials with attention to the following elements:

### 2.4.1 Conformity with Guidelines

Applications should exhibit the general organizational, administrative, and operational structure of cancer centers and request allowable and appropriate costs as outlined in these guidelines.

### 2.4.2 Format

Applications should be prepared in conformity with the PHS Grant Application form 398 (05/01) instructions and with the format outlined in Part III of these Guidelines to facilitate review of the submission. It is very much in the applicant's interest that review of these complex applications be as trouble-free as possible for peer reviewers.

### 2.4.3 Completeness of Required Information

Both Part III of the Guidelines and the Standard Cancer Center Information Summaries are designed to assure that an application contains all of the information necessary for an objective and thorough review. The applicant should ensure that all essential information is presented completely and unambiguously, so that the quality and consistency of the review process is not compromised.

When an application reveals deficiencies in the elements above, the SRA may exercise any of the following options, depending upon the magnitude of the problem: (1) request additional clarifying information or revised materials from the applicant; (2) accept for review only those parts of the application that have been prepared in accord with the CCSG guidelines; (3) defer the application to a later review cycle; or (4) return the application to the applicant without review. In addition, peer reviewers retain the option of reducing the merit or not recommending for further consideration any element in the application that they do not feel has adequate documentation to make a full and fair judgment.

## 2.5 Review of the Application

Once the application is submitted, at no point in the review process should the applicant contact any member of the site-visit team, the parent review committee, or the National Cancer Advisory Board. It is a serious breach of NIH policy for the applicant to have any form of communication with reviewers between submission of the application and rendering of a funding decision.

### 2.5.1 Site Visit

CCSG applications are site-visited by a group of experts under the authority and responsibility of the Scientific Review Administrator (SRA). Site visitors gather information for final evaluation by the parent committee. The SRA contacts the Center Director well in advance of the site visit date to decide on the appropriate length of time for the site visit, discuss the proposed agenda, and coordinate other site visit logistics. Site visits range from one to one-and-a-half days at the cancer center depending upon the size and complexity of the application and the center. Centers are encouraged to present some or all shared resources, depending on their complexity, in a poster session format or by other non-traditional methods, so that reviewers can focus more of their time on the scientific Programs of the center.

Revised applications are not necessarily site visited again unless there are substantial changes in the center that require on-site information gathering.

A written report of the site visit will be provided to the applicant for factual corrections prior to the final review of the application by the Parent Committee (See Part II, 2.5.2)

### 2.5.2 Parent Committee

The National Cancer Institute Initial Review Group (NCIIRG Subcommittee A) is a chartered review committee of the NIH. After considering the written report of the site visitors, the expressed viewpoints of NCIIRG members who participated in the site visit, response of the applicant to the site visit report, and the deliberations of the full committee, the NCIIRG provides a final merit evaluation and a budget recommendation for the CCSG application in the form of a Summary Statement, which is provided to the principal investigator as soon as it is available. The NCIIRG also determines if the scientific criteria for comprehensiveness are met.

### 2.5.3 Ad hoc Review

Whenever conflicts of interest are anticipated by the SRA within the usual two-step peer review system of site visit and NCIIRG, (e.g., when applications are submitted from institutions of NCIIRG members), the SRA is obligated to conduct an ad hoc review. In such cases, a single-step ad hoc review is conducted in lieu of the usual two-step process.

### 2.5.4 National Cancer Advisory Board (NCAB)

The NCAB is the final step in the peer-review process. The NCAB may concur with all peer-review recommendations, ask for re-review, or make some other recommendation. NCAB approval must precede funding.

## 2.6 Inquiries About the Application

### 2.6.1 Before Completion of NCIIRG Review

After submission of the application and before completion of the site visit and the NCIIRG review, all inquiries should be directed to the Scientific Review Administrator, who is responsible for all aspects of the peer review process.

### 2.6.2 After Completion of NCIIRG Review

After the NCIIRG meeting, all inquiries should be made to the program director in the Cancer Centers Branch (CCB) responsible for programmatic oversight of the application or to the Chief of the CCB. The Grants Management Specialist is also an important source of information for all post-review fiscal matters pertaining to the grant.

# 3.0 Programs, Budgets, and Allowable Costs

## 3.1 Programs

A general description of Programs and how they are expected to function is given in Part I, 8.0. Peer reviewers will be asked to assess the effectiveness of a center's Programs and leaders.

### 3.1.1 Definition of Peer-Reviewed, Funded Research Projects for Inclusion in Programs

Peer review as employed by the NIH is the acceptable standard for inclusion of a cancer-related research project within a formal Program. Peer-reviewed, funded projects include the following:

- Awarded individual research grants, cooperative agreements and research contracts from the NCI. This includes all awards with the following prefixes: R01, R03, R18, R21, R24, R25E, R29, R33, R35, R37, R41, R42, R43, R44, R55, PO1 subprojects, P50 subprojects, U01, U54, U56, N01 research contracts and peer-reviewed, funded subcontracts of center members participating in collaborative research.

- Components of National Cooperative Groups (e.g., U10s, U19s) funded by the NCI (consult the Cancer Centers Branch staff to determine which components are equivalent to separate research projects).

- Individual research studies involving protocols approved by the NCI Cancer Therapy Evaluation Program (CTEP) and funded by NCI.

- Individual research studies involving prevention and control protocols approved by the NCI Cancer Control Protocol Review Committee and funded by NCI.

- Awarded research grants, cooperative agreements, and research contracts from other institutes of the NIH (same prefixes as above).

- Awarded research grants from the following federal agencies, and state and private organizations that meet the NIH standard for peer review:

  1. *Agency for Health Care Policy Research (AHCPR)*
  2. *American Foundation for AIDS Research (AFAR)*
  3. *American Institute for Cancer Research (AICR)*
  4. *Arizona Disease Control Research Commission*
  5. *Cancer Research Foundation of America*
  6. *Central Office of the Veterans Administration (VA) - excluding local/regional awards and "block" grants*
  7. *Colorado Tobacco Research Program*
  8. *Environmental Protection Agency (EPA)*
  9. *Food and Drug Administration (FDA)*
  10. *Howard Hughes Foundation*
  11. *Leukemia Foundation of America*
  12. *Leukemia and Lymphoma Society*
  13. *Multiple Myeloma Research Foundation*
  14. *National Institute for Occupational Safety and Health (NIOSH)*
  15. *National Office of the American Cancer Society (ACS)*
  16. *National Science Foundation (NSF)*
  17. *Nebraska Cancer and Smoking Disease Research Program*
  18. *Susan G. Komen Breast Cancer Foundation*
  19. *Texas Advanced Research Program/Advanced Technology Program*
  20. *University of California Tobacco-Related Disease Research Program (UCTRDRP)(research projects only)*
  21. *University of California-Wide Breast Cancer Research Program*
  22. *University of California-Wide AIDS Research Program*
  23. *U.S. Army (DOD) special research programs in ovarian, breast and prostate cancer*

Instructions and application forms for requesting special peer review consideration of selected individual cancer research grants from a source not listed above may be accessed at http://www3.cancer.gov/cancercenters/download/fundorg.pdf. Applications must be submitted at the time of grant submission.

## 3.2 Allowable Budget Items

The CCSG is intended to provide reasonable costs for a great variety of activities that are clearly related to the research needs of the cancer center. The narrative describing the role and function of requested personnel should clearly justify the stated percent effort, whether or not salary is requested. The major categories of allowable costs include the following:

### 3.2.1 Level of Effort for Senior Leaders and Program Leaders

Individuals in pivotal leadership positions in the center are eligible for salary support for the time and effort they devote to its research activities. They should be in place

and committed to a defined percent effort commensurate with their duties and responsibilities. Applicants and reviewers should consider the breadth and complexity of the role of each Senior Leader or Program Leader and determine the appropriate level of effort needed to meet this responsibility. Requests should not be based on any perception that reviewers expect a standard level of effort for all Senior Leaders and Program Leaders.

### 3.2.2 Level of Effort for Staff Investigators

Members of the center who have proven research track records and are clearly important contributors to the interactive programmatic activities of the center may receive salary from the Staff Investigator budget for their specific roles in the center. To qualify, an individual should (a) play a definable and special role in helping the center achieve its objectives that go beyond the activities implied by his/her own research support per se; and (b) be a PI or co-PI on at least one peer-reviewed and funded research-project award whose review conforms to the NIH standard (see Part I, 3.1.1).

Peer review of the use of Staff Investigator funds should include consideration of the special importance, as described above, of supported individuals to the center and whether the budget allocation to these individuals is commensurate with the time and effort on these activities that are not supported by other awards.

### 3.2.3 Planning and Evaluation

Costs of planning and evaluation might, for example, include support of a well-qualified external advisory committee; the use of ad hoc scientific and technical consultants when appropriate; a seminar series, when the speakers or invited participants clearly serve as consultants for the center's scientific or administrative activities, as documented by agendas and/or written evaluations; retreats designed to stimulate interdisciplinary research opportunities; and the conduct of regular assessments of research progress, interactions, membership participation, etc. by the senior leadership of the center. Costs for internal evaluation and priority setting processes (e.g., committees, etc.) extend only to the special roles of Senior Leaders and Program Leaders of the center. Use of Developmental Funds (see below) should be guided in great measure by the priorities and opportunities identified through the planning and evaluation activities of the center.

### 3.2.4 Developmental Funds

Developmental Funds are the major source of budgetary flexibility in the CCSG and should be linked substantially to the planning and evaluation activities of the center. These funds allow centers to strengthen weaker scientific areas and provide scientists the opportunity to explore innovative ideas emerging from new collaborations and interactions or the development of new technologies. There is no dollar limit or limit on the percent of the total CCSG budget for a request in this category.

Developmental funds may be used only for the following: a) to recruit scientists in areas of strategic need; b) to provide interim support to scientists who have temporarily lost grant support while they revise and resubmit their applications; c) to support pilot projects that allow center scientists to pursue new, innovative, high-risk ideas or stimulate high priority research areas of the center (e.g., translational research); d) to develop new shared resources or new and unique components for an existing shared resource; and e) to support technology/methodology development projects. Developmental funds do not pay specifically for training (see Part II, 3.2.4.1 and 3.2.4.4), or for equipment purchases or upgrades for established cores. They are not intended as salary support for Program leaders (see Part II, 3.2.1), but may fund the salaries and research costs of individuals recruited to the center specifically for their scientific expertise.

Within the five categories above, the cancer center is expected to centrally monitor and evaluate the effectiveness of all developmental funds. These funds can be administered flexibly; they may be dispensed centrally by the director and senior leaders to achieve broad strategic objectives and/or delegated to individual Program leaders to target specific scientific objectives. The latter approach has proven to be very successful for many cancer centers.

Peer review of developmental funds will assess past effectiveness in, and adequacy of future plans for, achieving the strategic scientific objectives of both the center as a whole and its individual Programs. Careful records on the deployment of developmental funds, the rationale for their use, and the results of their effectiveness should be maintained and presented to peer reviewers.

#### 3.2.4.1 Newly Recruited Investigators

The purpose of this category is to promote new faculty level recruitment for cancer research at the institution; judicious recruitments of this kind can be expected to strengthen weak areas of science and to enhance the overall research strength of the center. Eligible investigators therefore are: (1) those newly recruited from outside the parent institution; in this case developmental support usually begins at the time of, or very soon after, arrival at the grantee institution. (2) those inside the institution who, whether junior scientists or well established in other scientific areas, are entering the field of cancer research as independent investigators for the first time.

Developmental funds are not intended for support of training per se but may be used for recruitment packages that include any of the staff needed (e.g., technicians, graduate students, postdoctoral fellows) to initiate the research program of a new investigator. The duration of support from these funds should not exceed three years. This category should provide temporary support permitting a new cancer investigator at the institution to establish his/her scientific activities at the new center and achieve independent funding. Developmental funds in this category are not for the support of established cancer researchers already within the institution (for example,

principal investigators on R01s or subproject leaders on P01 or P50 multicomponent grants from the NCI).

Competing renewal applications should include an explanation of how developmental funds in this category were used in the previous competitive segment (previous 3 to 5 year grant period), specifying which investigators and projects were supported, the rationale for recruiting these investigators relative to the needs of the center, and to what extent these investigators were subsequently successful in attracting independent research support and/or production as evidenced by research publications.

The CCSG application should identify the kinds of individuals the center plans to recruit as part of its future plans for developing the center, but it does not need to specify particular individuals or research plans.

#### 3.2.4.2 Interim Salary and Research Support

The intent is to permit the center director to provide partial support for up to 18 months to an investigator who has a reasonable probability of regaining independent research support in the near future. Interim salary and support may be provided whether or not some of the salary was funded by the CCSG in the Staff Investigator category. This mechanism is not intended for support of individuals who are having chronic difficulty with peer-review grant support and for whom permanent institutional funds are not available. The CCSG application should include a description of the process and the criteria used to select investigators for interim support. The use of interim salary and research support is to be reported to NCI in each non-competing continuation application. At the time of the next competing continuation, peer review will examine the uses of the interim support category and the success that individuals supported from this category have had in regaining peer-reviewed grant support.

#### 3.2.4.3 Pilot Projects

Centers are encouraged to make these funds accessible to all applicable areas of research, including basic, clinical, prevention, control, behavioral and population sciences. Developmental funds may be used for pilot projects or feasibility studies preparatory to the development of an application for independent peer-reviewed support, or to take maximum advantage of a unique research opportunity or idea in the basic, clinical and/or population sciences. Such projects, for example, may stimulate a high priority research area of the center, explore a new direction for a Program, nurture an innovative idea, explore an unconventional hypothesis, or encourage cross-disciplinary translational research. Pilot projects may be awarded to either new or established investigators. The support of pilot projects or feasibility studies should be of relatively short duration (i.e., 1-2 years), depending upon the nature of the research.

Many institutions have particular difficulty supporting small, hypothesis-driven early clinical trials of an exploratory nature that have no grant support of their own. See section 3.2.8 (Protocol-Specific Research) for how the CCSG can be used to support these types of studies.

The center should have defined processes and criteria in place for awarding the use of Developmental Funds for pilot projects. The funds should be awarded to a designated investigator for an identified project. The CCSG application should contain a description of the process by which the center elicits high-quality proposals from investigators and the procedures and criteria by which the proposals are reviewed for scientific merit, funding decisions made, and projects monitored to ensure effective use of pilot-project funds. Renewal CCSG applications should supply information about the outcome of all projects supported by the CCSG through the pilot-project mechanism.

#### 3.2.4.4 Technology/Methodology Development Projects

NCI encourages the development of new technologies that will advance cancer research. In these Guidelines, technology refers broadly to methodologies (procedures, instrumentation, analytical tools or reagents) that address important problems in cancer research, including, but not limited to, areas such as the detection and analysis of molecular signatures of cancer in vitro or in vivo, biomedical imaging, model development, drug discovery, tumor targeting, drug delivery, survey development, and informatics.

Funds for technology development projects can be awarded through an internal review process to resource leaders and individual cancer center scientists. Review criteria should emphasize scientific merit, innovation, and the likely impact of success on important areas of cancer research. If CCSG resources are used in partnership with industrial resources, the cancer center must assure that applicable federal law governs the public availability of any final products of the research.

#### 3.2.4.5 Development of New Shared Resources and New and Unique Components in Existing Shared Resources

Developmental funds may be used to help develop new shared resources or new and unique components in existing shared resources whenever the center recognizes the need. If funds are to help build new shared resources during the grant period, they should be included in the developmental funds budget category. If the resources are sufficiently developed to be proposed and reviewed as established resources, they should be proposed under the shared resources category. New and unique components for existing shared resources may also be supported, but must be fully justified.

### 3.2.5 Center Administration

This category includes the costs necessary for central administration of resources and services required for center research activities, fiscal management of the center, and reporting activities thereof. Because administrative structures differ from center to center, the requested support should be explained and justified with some care. Requests for administrative support may include an appropriate percentage of the salary of the chief administrator, other support staff, and travel and supplies as needed for the administrative functions of the Center. In addition, the CCSG central administrative budget can support secretarial and other staff and travel needs of Senior Leaders and Program Leaders in the performance of their center-specific roles. Examples of non-allowable costs include non-research educational activities, public relations, fund-raising, and grant preparation.

These costs may not duplicate services normally supported through indirect costs. For university-based centers, these costs may not replace functions and services normally provided by the institution to other comparable research units of the institution (e.g., departments). For freestanding cancer centers, the CCSG should not pay the costs of operating an institution and/or hospital or, more generally, for management of those activities and functions that are reasonably regarded as institutional responsibilities. In the event of ambiguity or disagreement about what is "reasonable," center directors should be prepared to explain to reviewers why certain requests should not be the responsibility of the institution.

### 3.2.6 Shared Resources and Services

The CCSG may pay for research costs associated with centralized shared resources and services. These costs are therefore not directly identified with specific research grants; indeed, except for support of pilot projects with Developmental Funds (see Part II, 3.2.4.3), CCSG funds are not intended to support research activities dedicated to project-specific functions, which are paid for by research project grants. In the case of matrix centers, support for shared resources or services may be requested from the CCSG if they are not normally provided by the institution to departments or other components of the institution comparable to the cancer center.

#### 3.2.6.1 Users of Shared Resources and Services

The primary users of shared resources and services are cancer-center investigators with peer-reviewed, funded projects; this is the standard that assures that CCSG funds are being expended to support high-quality research. However, there can also be some access by others at the discretion of the center director. This use should be justified by contributions to the overall objectives of the center in cancer research. To the extent that statements in these guidelines apply to shared resources, they only apply to the proportion of a resource or service that is paid for by the CCSG; NCI clearly recognizes that most or all of these shared resources derive a portion of their operating costs from other sources.

### 3.2.6.2 Operational Costs to the CCSG

There is no standard approach that applies to all shared resources and services. There are always special considerations depending upon the characteristics of the institution, the technical or non-technical nature of the resource, and the proportion of the resource paid for by sources other than the CCSG. Since the primary costs of research are supported by the peer-reviewed, funded grants and research contracts of the center, the CCSG applicant should consider the following elements in developing budgets for shared resources and services: (1) the need for the resource relative to the current and future peer-reviewed research activities of the center; (2) the current and projected use of the resource by multiple investigators (See Part I, 9.3); (3) making the resource supported by the CCSG as cost-efficient as possible and ascertaining that the resource is still a cost-effective center expenditure in comparison to other options (e.g., purchase orders or contracts to an outside vendor); (4) maintaining stability of the operation; (5) maintaining the quality of the service; (6) assuring accessibility of the resource or service to qualified member-investigators, including the critical consultative role performed by experts who direct selected shared resources; (7) the proportion of the total resource operation paid for by the CCSG relative to other sources; and (8) in the case of an institutionally managed (as opposed to cancer center managed) resource, leverage the CCSG support provides to the Center in regard to priority setting and resource planning and oversight.

In general, the CCSG provides salary stability for the "fixed" costs associated with key personnel operating the resource and providing consultative services, as well as minimal supplies; "variable" costs are usually supported by user fees or by other sources. The ratio of the fixed-to-variable costs will depend upon the frequency of use of the resource, as some resources will be more self-sustaining than others and will cost the CCSG less, and also upon whether the service is a support function (e.g., glass washing, media preparation), or whether it provides access to expertise and technology (e.g., DNA sequencing, transgenic mice), or to collaboration (e.g., biostatistics).

### 3.2.6.3 Peer Review of Shared Services

The ultimate justification for any shared resource is that it supports excellent science. Because this category contains an enormous range of resources and activities, there is no sensible way to stipulate what kinds of information should be collected and presented for peer review. Considerable latitude is accorded applicants in making their case for support of a resource to peer review; applicants should make the case for each shared resource in a manner that makes sense for that resource. An individual core should be evaluated in straightforward terms: (1) Is it strategically important to the science of the Cancer Center? (2) Is it necessary that the Cancer Center manage/control the shared resource? (3) If CCSG support is requested for an

institutional core, will the requested support provide leverage for the Center in relation to access for center members and/or participation in core management? (4) Does it deliver a high-quality product in a cost-efficient manner? (5) Is the budget request well supported in terms of the amount and quality of the service provided?

**Recordkeeping**: Appropriate records of use should be maintained for each shared resource and service. The nature of this documentation depends on the resource or service and is not specified in these guidelines. These records should be available at the time of the site visit.

Because reviewers' ability to judge a budget request depends on information on past and projected utilization by the scientists for whom the resource is intended, sufficient information on utilization for each shared resource should be presented in the application to allow thorough and complete peer review evaluation prior to the site visit. Peer evaluations are based on quality of the management, competence of key technical staff, adequacy and appropriateness of utilization, and cost effectiveness of the resource. The requested budget should reflect realistic needs in terms of availability of support from other sources (e.g., institutional support or recovery from chargeback), recent past utilization by the scientists for whom the resource is intended, anticipated future increases in utilization, and any known specific additional requirements that will be needed in the near future. The data to support and justify the requested budget should be included in the application as delineated in Part III, 10.7.

#### 3.2.6.4 National Institutes of Health (NIH) Policy Relative to Program Income

As with all other grants issued by the NIH, if income is realized from grant-supported activities (e.g., from CCSG supported shared resources), this income must be reported in the budget/financial statements accompanying annual progress reports and on the annual financial status report. In accordance with NIH Grants Policy, the "additive cost alternative" will apply to the first $25,000 of program income. Unless approved for use otherwise, program income in excess of $25,000 will be deducted from the next year's award.

### 3.2.7 Protocol Review and Monitoring System (PRMS)

The purpose of the PRMS is to review the scientific merit, scientific priorities, and scientific progress of all clinical protocols involving cancer patients in the facilities of the institution(s) that define the cancer center. The PRMS is not required to review protocols dealing with healthy human subjects and the population sciences, e.g., genetic epidemiology studies.

#### 3.2.7.1 Elements

The PRMS should have the following elements: (1) a qualified review and monitoring committee with sufficient size and breadth of expertise to conduct a critical, fair scientific review of all clinical research protocols involving cancer patients in the institution or institutions comprising the center; (2) clear criteria for scientific review which take into account the specific rationale, study design, duplication of studies already in progress elsewhere, adequacy of biostatistical input, and feasibility for completion within a reasonable time frame; (3) clear criteria for determining whether ongoing research is making sufficient scientific progress, including adequate patient accrual rates; (4) a mechanism for overseeing the prioritization of competing protocols from all sources (including cooperative group trials and industry trials) and thus, for insuring optimal use of a center's clinical resources for scientific purposes; and (5) authority and process for initiating, monitoring and terminating all cancer clinical research protocols in the institution or institutions comprising the center. The PRMS is responsible for periodic review of scientific progress, i.e., the goals of the study and adequate accruals. This responsibility does not include auditing or data and safety monitoring. These are addressed within the Clinical Protocol and Data Management Shared Resource (Part I, 9.4).

#### 3.2.7.2 Application

The CCSG application should specify the following: (1) membership of the internal review committee; (2) internal guidelines for reviewing and monitoring research protocols; and (3) a listing of all active protocols (with accruals to date) and new protocols in the center requesting access to CCSG shared resources.

#### 3.2.7.3 Review

The peer reviewers of the CCSG application will review this information at the site visit. A representative sample of the listed protocols will be requested in advance of the site visit for detailed review.

#### 3.2.7.4 Recommendations

The reviewers may recommend approval, conditional approval or disapproval of the PRMS. If disapproved, institutional protocols that have not been reviewed by outside mechanisms (such as the CTEP or the DCPC Protocol Review Committees) may not have access to the CCSG-supported shared resources. In cases of conditional approval or disapproval, the peer review will articulate clearly in the Summary Statement what steps or changes are needed for full approval, along with any recommendation for options and timing of re-review by the NCIIRG. Further guidance will be provided by the Cancer Centers Branch to correct deficiencies.

#### 3.2.7.5 Budget

Because of the importance of maintaining a stable, effective scientific evaluation and monitoring function for clinical protocols, the budget request to support the PRMS may include appropriate personnel, administrative support, equipment appropriate to the task, and supplies.

### 3.2.8 Protocol-Specific Research

The CCSG can support a core group of research nurses and data managers dedicated to the direct conduct and completion of innovative, feasibility or proof-of-principle clinical trials originating from the center's Programs and of highest priority to the center. These may include any kind of clinical translational research culminating in the initial early-phase testing of a candidate agent or device for the diagnosis, prevention, detection, or treatment of cancer. These kinds of feasibility/phase I studies should be of short duration (i.e., less than one year) and can form the potential basis for future grant support or for entry into phase II and phase III studies supported by NCI or industry. Oversight of this budget should be provided by the leadership of the cancer center. These positions cannot be funded until the center's PRMS (Part II, 3.2.7) has been approved or conditionally approved by peer review.

#### 3.2.8.1 Application

The number of positions requested in the application is intended to support a reasonably sized core group of experienced data managers and research nurses to ensure that feasibility/phase I clinical studies of highest scientific priority can be initiated and completed without delay. This support is not meant for the conduct of all of the early phase trials originating from the center's Programs; it is restricted to the above-mentioned positions. The request should be based on the intensity of the center's actual and projected clinical trials activity in areas of high scientific priority.

#### 3.2.8.2 Review

Peer reviewers will examine the number, quality, complexity and innovativeness of the center's past and projected early-phase clinical trials activity and the adequacy of the process for prioritizing, assigning and overseeing the requested research nurses and data managers. On this basis, the reviewers will determine the need for the proposed positions; that is, the number of positions needed should not be determined on the basis of formulas relating the number of patients accrued to the number of research nurses or data managers needed.

#### 3.2.8.3 Relation to Industry Support

Guidance is the same as for the use of other shared resources for clinical trials (see Part I, 9.5).

### 3.2.9 Some Restrictions on Allowable Budgets

Requested and/or awarded funds may not duplicate or replace costs normally included in the institution's indirect cost base or various services and benefits

normally provided by the institution (e.g., purchasing services, personnel services, and other ancillary services) in support of other research organizations (other centers, departments, institutes, etc.). In general, CCSG funds should not be used to compensate for NIH/NCI administrative reductions of active research grants, cooperative agreements, and contracts. CCSG funds may not be used to pay for shortfalls in funded research projects due to over-expenditures on the funded project or NIH reductions in awards. The CCSG funds are not intended to supplement or offset any patient costs, even those directly related to clinical research protocols, including costs for parking, taxi fares, meals, or hotel rooms. The cost of clinical trials should be supported by their respective research projects. The CCSG, however, may support research pilot studies as allowed by the developmental funds and protocol specific research function, for institutional early phase I, PRMS approved protocols. Signatures by the principal investigator and the business official on the face page of the CCSG application officially attest that all of the requested costs comply with these conditions.

## 4.0 NIH Policies Governing Inclusion of Women, Minorities and Children in Clinical Trials; Data and Safety Monitoring; Data Sharing: and the Health Insurance Portability Act

### 4.1 Inclusion of Women and Minorities in Clinical Trials (NIH Policy)

The provision of clear documentation about the accrual of women and minorities in clinical trials is essential. If the application is not approved in this respect, a grant award cannot be issued until a corrective plan and adequate response to the critique is submitted and approved by NCI. Under the NIH policy, clinical research is defined in Instructions for PHS 398 (Rev. 5/01) Section IIIA.

When the reviewers evaluate the section of the application on the inclusion of women and minorities in clinical research, they will consider whether the accrual of women and minorities to therapeutic trials is proportionate to the general cancer patient population (nationally) and to the cancer patient population in the cancer center's primary catchment area. Reviewers will evaluate accrual to nontherapeutic trials separately using similar criteria. Although accrual to both therapeutic trials and nontherapeutic trials are important, one does not substitute for the other, and therefore the data for each type will need to be presented and assessed separately. When there is substantial under-representation, the adequacy of the institution's policies, specific activities and a corrective plan become critical in convincing peer reviewers that the institution is serious about addressing the problem and is investing the appropriate effort to correct under-accrual. In addition, if the population of the catchment area of the cancer center has limited ethnic diversity, it will be important to discuss what the institution is doing to broaden the ethnic diversity of its clinical trial accrual, since the aim of this policy is to assure that the results of clinical research are generally applicable.

For the purposes of these guidelines, the definition of ethnic and racial categories as stated in the NIH policy for inclusion of women and minorities in clinical studies will be used. See Instructions for PHS 398 (rev. 5/01)

In addition, the revised PHS 398 (5/01 version) requires applicants to provide data on the composition of proposed study populations in terms of gender and racial/ethnic groups. For CCSG applications, this requirement is limited to projected accrual to phase III studies that utilized CCSG resources and are not funded by any other PHS grant mechanism. Table formats for both targeted/planned enrollment and actual enrollment may be found in the PHS 398 grant application.

### 4.2 Inclusion of Children in Clinical Trials (NIH Policy)

It is the policy of NIH that children (i.e., individuals under the age of 21) must be included in all human subjects research, conducted or supported by the NIH, unless there are scientific and/or ethical reasons not to include them. This policy applies to all competing applications.

All investigators proposing research involving human subjects should read the "NIH Policy and Guidelines on the Inclusion of Children as Participants in Research Involving Human Subjects" that was published in the NIH Guide for Grants and Contracts, March 6, 1998, and is available at the following URL address: http://grants.nih.gov/grants/guide/notice-files/not98-024.html. As part of the scientific and technical merit evaluation of the research plan, reviewers will be instructed to address the adequacy of plans for including children as appropriate for the scientific goals of the research, or justification for exclusion.

### 4.3 Data and Safety Monitoring Plan

NIH policy (http://grants.nih.gov/grants/guide/notice-files/not98-084.html), with additional description at http://grants.nih.gov/grants/guide/notice-files/NOT-OD-00-038.html, requires that grantees have procedures in place for data and safety monitoring (DSM) of clinical trials (See Part I, 9.3.2.1).

CCSG applications should provide within the text of the application a summary of the DSM Plan. The entire DSM Plan should NOT be provided within the text but made available at the time of the site visit should the peer reviewers need additional information for their determination of acceptability.

Data and safety monitoring functions are most appropriately addressed within the Clinical Protocol and Data Management Shared Resource, however they may be located elsewhere. They should not be the direct responsibility of the same Protocol Review and Monitoring System (PRMS) that oversees scientific aspects of cancer clinical trials.

By NIH review criteria, the peer reviewers will be responsible for determining the acceptability of the plan. Peers are expected to define the weaknesses of an unacceptable DSMP and to reflect any weaknesses in the priority score. The final approval of a DSMP in its original form or later modified form is the responsibility of the staff of the Cancer Centers Branch.

### 4.4 Data Sharing

The Final NIH Statement on Sharing Research Data was released on February 26, 2003 (http://grants2.nih.gov/grants/guide/notice-files/NOT-OD-03-032.html).

Starting with the October 1, 2003 receipt date, investigators submitting an NIH application seeking $500,000 or more in direct costs in any single year are expected to include a plan for data sharing or state why data sharing is not possible. CCSG awardees should adhere to the data-sharing policy, based on the source of funding for the research involved. If the CCSG provides direct support for the generation of research data (e.g., pilot projects supported through developmental funds, early phase clinical trials conducted with funds from Protocol Specific Research Support) or funds core resources that serve as the final repository of data (e.g., a high throughput DNA array analysis core), a plan must be submitted for data sharing that is in accordance with the NIH Statement. If core resources are being used in support of NIH funded research grants (e.g.,R01s) in excess of $500,000, the investigator of the NIH grant is responsible for providing a data sharing plan to the funding source and adhering to that plan; no additional action is required of the Cancer Center for these grants.

Reviewers will not review the proposed data-sharing plan, thus it is not factored into the determination of scientific merit or priority score. Program staff will be responsible for assessing the appropriateness and adequacy of the proposed data sharing plan.

Additional information on data sharing is available at http://grants2.nih.gov/grants/policy/data_sharing/.

### 4.5 Health Insurance Portability and Accountability Act

The NIH released a notice in the NIH Guide on February 5, 2003 regarding the impact of the HIPAA Privacy Rule on the review, funding and progress monitoring of grants (http://grants1.nih.gov/grants/guide/notice-files/NOT-OD-03-025.html).
The Privacy Rule is administered and enforced by the Office for Civil Rights of the Department of Health and Human Services. NIH is not involved in the enforcing or monitoring compliance with this rule. New and competing continuation CCSG grant applications will continue to be evaluated using the existing review criteria found in the Guidelines and the PHS 398. Funding decisions for CCSG awards will continue to be based on merit, programmatic considerations, and availability of funds. Program staff will seek resolution of issues or problems noted in the summary statement with investigators.

## 5.0 Peer Review Criteria for Competing CCSG Applications

### 5.1 General Guidance

**Overview.** The role of peer review is to assess the extent to which the center has promoted and/or is likely to promote excellence in research that may lead to a reduction in the incidence, morbidity, and mortality attributable to cancer. Successful applications will come from institutions with a strong research base in cancer-related science. They will demonstrate to the satisfaction of peer review that the center adds tangible value to the research base already in place within the institution, and that the six essential elements of an NCI cancer center are met. Successful candidates for the comprehensive designation will demonstrate that scientifically excellent and well-integrated Programs are in place in each of the three major research areas and that substantial interactions between these areas are

evident. Reviewers will also evaluate how well the center's leadership, organization, and processes for development and evaluation have facilitated scientific productivity, strengthened the institution's research capabilities, and enabled its investigators to take advantage of scientific opportunities over and above what would have likely taken place in the same institution without the CCSG. It is up to the center director, as principal investigator of the application, to marshal the evidence in support of the effectiveness of the center.

**Reviewing Science in the CCSG.** Science, not process, should be the particular focus of the review. Even when elements of organization and process are to be evaluated, such as the essential organizational elements or the ways in which flexible funds are utilized, the touchstone of success should be the scientific judgment behind or consequences of particular actions or decisions. Note that, in the context of a CCSG review, assessment of scientific quality differs importantly from the familiar peer review of individual grants. It is not, for example, the role of peer review to re-examine in detail individual projects that have already received fundable priority scores. Rather the scientific review of a CCSG should seek to address two major issues:

What is the overall quality of the science going on in the center and its Programs? What has been the overall quality of the contributions by the center to the advancement of cancer-related science?

What impact has the center itself had (or is it likely to have) on the quality of the science, the productivity of the scientists, and the interdisciplinary activities of the institution relating to cancer?

Thus reviewers are asked to assess the extent to which the cancer center adds value over and above what one might reasonably expect from the separately funded research efforts themselves. Have the scientific Programs been assembled and members of the center selected in a thoughtful manner that results in coherent Programs and maximizes the presence of the best cancer-related interactive science in the parent institution as a whole? How do the different cancer-related scientific thrusts in the parent institution actually fit together in the center? From the science presented at the site visit and in the application, reviewers should assess whether the choices for center membership made by its leaders have resulted in a group of excellent scientists who are also committed to productive interactions with one another. Exactly how the applicant decides to convince the peer review process that the center is a scientific success is not stipulated by these guidelines; the responsibility for doing this lies squarely on the shoulders of the CCSG's principal investigator.

**Assessing Merit in Face of Institutional Diversity.** The peer-review process will need to reckon scientific merit and the value-added feature of centers across a great variety of institutional settings. In any particular year, small institutions compete directly with very large ones; centers organized only recently against some that have existed for decades; and institutions that have only just assembled research groups against some of the most distinguished cancer-research organizations in the world. In the presence of such diversity,

NCI encourages peer review to recognize and reward scientific excellence in the variety of organizational forms. The great scope of cancer research and the non-restrictive nature of CCSG requirements should make it possible to construct scientifically excellent centers around very diverse themes. It should also be evident that scientific excellence is not synonymous with large size. Reviewers should be prepared to reward those centers that have been able to create something excellent from a science base of modest magnitude. Small institutions with limited internal resources may choose to concentrate efforts in a few specialized areas and to develop a limited number of Programs that attempt to capitalize on particular scientific strengths or the availability of special populations. Focusing in this way is to be applauded, provided, as always, that the quality of the science is excellent.

**The Focus on Research.** The CCSG supports directly only those functions and salaries that relate to cancer research. In each component of the application, therefore, reviewers should evaluate which functions are specifically relevant to research, as opposed to those functions that relate to institutional responsibilities of any academic organization or freestanding institution. Specifically, with respect to salaried positions for scientific leadership, reviewers should distinguish responsibilities that pertain directly to the conduct of cancer research from those that would exist within any institution, regardless of the presence or absence of a cancer center.

**Rewarding Risk-taking.** The CCSG as a whole focuses on the peer-reviewed scientific base of a center, and many of the important parameters that define the CCSG are related to this. By definition, however, much of the building of new strength of a center comes from engaging and assisting relatively junior or inexperienced individuals. Developmental funds provide a center director with a powerful and flexible means of taking chances on people or projects for which success is not guaranteed. Many shared services can also function in this way and exert some of their most positive impact by educating investigators and enabling them to attempt things they would not otherwise have been able to do. For example, the role of a highly interactive biostatistics group in promoting the ability of investigators to formulate better clinical protocols or submit better grant proposals or better publications may have considerable impact on the quality of an institution's science. This is "value added" in the best sense.

## 5.2 Specific Issues for Review

To assure stringent and fair review across the diverse range of institutions applying for CCSG support, NCI provides the following specific review criteria for reviewers to consider in evaluating the merit of the CCSG application and its key sections.

NOTE: Appropriateness of the budgetary request in relation to the research and/or services provided applies to all items below for which funds are requested.

### 5.2.1 Scientific Quality of Each Program[5]

(merit descriptor for each Program)

[5] Refer to Part I, 5.0 and 6.2 when evaluating the clinical research of the center.

- overall scientific quality of the Program
- value added by the Program to the research efforts of its members in promoting interdisciplinary and/or translational research
- judicious and justifiable selection of members of the Program, based upon evidence of participation in the Program
- effectiveness of Program Leaders
- appropriateness of the percent effort requested for the Program leader in relation to the difficulty and complexities of his/her responsibilities

### 5.2.2 Overall Quality of the Programs

(merit descriptor)

- overall scientific quality of the Programs
- value added by the center

### 5.2.3 Essential Characteristics of the Center

(merit descriptor for each)

#### 5.2.3.1 Cancer Focus

- adequacy of the cancer research focus, as judged by the content of the Programs and by the research support and publications of center members

#### 5.2.3.2 Institutional Commitment

- extent to which the institution, whether small or large, has met prior commitments and provided (or plans to provide) resources to insure that the center can fulfill its objectives and reach its full potential
- adequacy of the space, positions and discretionary resources made available to the center
- adequacy of the formal organizational status of the center and its director within the institution to insure center stability and fulfillment of objectives
- adequacy of the institution's plan to deal with a change in the directorship of the center

#### 5.2.3.3 Center Director

- scientific and administrative qualifications and experience of the director in relation to the center's research activities and objectives

- appropriateness of the director's time commitment to the center's research activities

- adequacy of the director's authority over, and effectiveness of the director's management of, the center's space and research resources

- adequacy of the director's authority over, and effectiveness of the director's management of, appointment of new members and discontinuation of existing members

- adequacy of the director's authority over, and effectiveness of the director's management of, new appointments to the faculty to enhance the research objectives of the center

- in centers with clinical research activities, adequacy of the director's authority to assure access to inpatient and outpatient facilities to achieve center objectives

#### 5.2.3.4 Organizational Capability

- effectiveness of the center's organization in taking full advantage of the institution's capabilities, whether it is a large or small institution, in cancer research and in fostering scientific interactions

- adequacy of the center's procedures for selecting new members and maintaining membership status

- effectiveness of the center in use of internal and external advisory bodies for improving organizational capability

#### 5.2.3.5 Facilities

- adequacy and suitability of the center's facilities in relation to its activities and objectives

#### 5.2.3.6 Interdisciplinary Coordination and Collaboration

- extent to which interdisciplinary activities between/among Programs have added value to scientific activities relating to cancer research in the institution

- level of translational activities within the center, including the effective movement of discoveries from the laboratory into clinical and population research activities, as well as the movement of observations in clinical and population studies back into the laboratory

### 5.2.4 Senior Leadership

(merit descriptor)

- qualifications and effectiveness of each senior leader in relation to his/her role in the research activities of the center

- appropriateness of the time commitment of each leader in relation to needs and objectives and to the difficulty and complexity of his/her responsibilities

### 5.2.5 Planning and Evaluation

(merit descriptor)

- effectiveness of external and internal advisory and evaluation activities on the development of the center's scientific activities

- appropriateness of the External Advisory Committee relative to the Center's needs

- effectiveness in using the External Advisory Committee as a group

### 5.2.6 Developmental Funds

(merit descriptor)

- effectiveness in (or potential for) strengthening the strategic scientific needs and infrastructure in the basic, clinical and/or populations sciences based on the center's planning and advisory processes

- effectiveness in (or potential for) taking advantage of scientific opportunities identified by individual scientists and Programs in the center based on scientific merit

- effectiveness of the center in use of internal and external advisory bodies to assist in identifying scientific opportunities and needs

### 5.2.7 Protocol Review and Monitoring System

(approve, conditionally approve or disapprove)

- appropriateness of the composition of the review committee relative to its responsibilities and scientific expertise

- appropriateness of the criteria for scientific review and decision-making

- effectiveness of the committee in monitoring the conduct of clinical protocols for scientific progress, e.g., the goals of the study and adequate accruals, overseeing the prioritization of competing protocols, and closing those that are not performing adequately.

### 5.2.8 Protocol Specific Research

(merit descriptor)

- appropriateness of the number and percent efforts of research nurses and data managers to serve as a core group of experienced staff to conduct and complete feasibility/phase I studies of highest scientific priority as these relate to the quality, innovativeness and overall extent of the center's total activity

- adequacy of the process for setting priorities in the assignment of these research nurses and/or data managers and for overseeing the progress of the research

### 5.2.9 Shared Resources and Services

(merit descriptor for each resource)

- strategic scientific importance of the resource

- quality of the science the resource supports

- if a cancer center core, justification as a center-managed activity; if an institutional core, leverage the CCSG support provides in relation to access for members and/or participation in core management

- quality of the product and cost-efficiency of the service (e.g., whether quality and costs compare favorably with equivalent services provided by an outside source)

- justification of the budget request in terms of the amount and quality of the service provided

- for high throughput cores, breadth of use by, and benefit to, center members; for low throughput or specialized cores, benefit to members and accessibility based on a fair and equitable prioritization system

#### 5.2.9.1 Biostatistics

(merit descriptor)

- quality of biostatistical consultative and collaborative contributions to the planning, development and analyses of basic, clinical and population research

- adequacy of the biostatistical analytical capabilities relative to the research needs of the cancer center

#### 5.2.9.2 Clinical Protocol and Data Management Shared Resource

(merit descriptor)

- quality and diversity of the total clinical trials activity to warrant CCSG support of a centralized resource

- adequacy of the management and/or quality control functions of the resource

#### 5.2.9.3 Informatics

(merit descriptor)

- degree to which the resource satisfies the essential scientific needs of the cancer center
- effectiveness of quality control over systems, data and processes
- efficiency of integrating data sources and systems to optimize data retrieval and minimize redundancy
- compliance with national or international informatics standards, if these exist in the areas of interest to the center's informatics development program

### 5.2.10 Center Administration

(merit descriptor)

- qualifications and effectiveness of staff in providing centralized administrative services important to the research activities of the center

### 5.2.11 Staff Investigators

(for each individual requested: approval as requested, or at a lower percent effort, or disapproval)

- importance to the center and contribution to its scientific activities with respect to special role in achieving center objectives beyond own research support
- extent to which the investigator's record of scientific productivity and contributions to the center justify the request for support
- proven record of accomplishment

### 5.2.12 Minority and Gender Representation

(approval, disapproval)

- appropriateness of the accrual of women and minorities to therapeutic and non-therapeutic clinical trials in proportion to the patient population nationally and within the center's catchment area
- when accrual is inadequate relative to these measures, adequacy of the center's plan to improve performance

### 5.2.13 Inclusion of Children in Clinical Trials

(acceptable or unacceptable)

- appropriateness of the plan for including children in clinical trials or acceptability of the justification for exclusion of children in clinical trials

### 5.2.14 Data and Safety Monitoring Plan

(acceptable or unacceptable)

- as per NIH instructions, adequacy of the Plan in defining the general structure of the monitoring entity and mechanisms for reporting adverse events.

### 5.2.15 Comprehensiveness (as determined by the Parent Committee)

- adequacy of the depth and breadth of basic, clinical, and prevention, control and population sciences to meet reasonable scientific requirements for comprehensiveness

- evidence of strong interactive collaborations bridging these sciences

### 5.2.16 Overall Merit Rating of the Cancer Center

(merit descriptor)

- overall strength of the components presented in the application

- value added by the CCSG

### 5.2.17 Overall Budget Recommendation

If after evaluating all individual budget requests, reviewers believe that the total budget is excessive relative to the overall quality of the science in the center, reviewers may recommend a single cut in the overall budget without identifying specific areas for reduction.

## 6.0 Comprehensiveness

Although there is no separate section of the CCSG application dedicated to comprehensiveness per se, the determination of whether a cancer center will be designated as "comprehensive" by the NCI is a two-step process. The first step is a determination by peer review that the center fulfills the broad scientific and interactive requirements for comprehensiveness as described elsewhere (Part I, 5.0 and Part II, 5.2.15). Unless a center chooses not to be reviewed for comprehensiveness (see Part II, 2.3.3), the Parent Committee automatically will evaluate the scientific and interactive aspects of comprehensiveness as an integral part of the overall review of the Cancer Center Support Grant.

Once the NCI determines that the CCSG application will be funded, and an award is issued, a second step involves the Executive Committee (EC) of the National Cancer Institute (NCI). Centers judged by peer review to have satisfied the scientific requirements for comprehensiveness will be asked by NCI to provide a brief summary that describes the institution's efforts to serve its community in each of the areas of outreach, education, and cancer information. This summary

should also describe how the public can access the available information (e.g., phone, website), and contain an agreement (signed by the Center Director and appropriate institutional official) to maintain the currency and accuracy of the information. The EC will examine the summary for completeness and adequacy and make the final decision on whether to recognize the center as comprehensive. The applicant will receive official notification of the outcome in writing from the Chief of the Cancer Centers Branch. An "NCI-designated Comprehensive Cancer Center" is authorized to use the special copyrighted logo developed by the NCI that signifies this official recognition.

### 6.1 One-time Opportunity to Reapply for Comprehensiveness

A funded grantee that has failed to receive the comprehensive recognition from either the parent committee or the EC of the NCI will be given a one-time opportunity during the grant project period to reapply for comprehensive designation. The application would address reviewer or EC concerns and be evaluated by the Parent Committee and/or the EC for approval.

### 6.2 Retaining the Comprehensive Designation

If an NCI Comprehensive Cancer Center's competing renewal application meets the scientific standards for comprehensive recognition from the Parent Committee but is voted a priority score that does not merit funding, the center may retain the NCI comprehensive designation only for as long as the NCI maintains the "active" status of the CCSG through administrative actions. In no case will the NCI allow retention of the designation beyond the peer-approved period of the renewal application.

This document can be viewed or downloaded online in its entirety and is available at the Cancer Centers website at the following address: http://cancer.gov/cancercenters/ . The specific address for Parts I and II is available as follows: http://cancer.gov/cancercenters/ccsg_competing_index1.html